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ACCIDENT FACTS

1989 EDITION

National Safety Council

Foreword

As the cliché says, there is good news and bad news. The good news concerns the progress made by the voluntary safety movement. The bad news concerns the effects of substance abuse on society.

As reported on page 10, the organized safety movement has reached a milestone: 3,000,000 lives have been saved, or, more accurately, premature deaths avoided, since 1912 when the organized, voluntary safety movement began. The death rate per 100,000 population for all accidents has been reduced 52 per cent from 82 in 1912 to 39 in 1988.

If the death rates that prevailed during the early years of this century had not been reduced, about 10.3 million lives would have been lost to accidents. The actual accidental death toll over the past 76 years has been about 7.3 million.

The bad news is reported on pages 11 and 94. In 1988, accidental deaths from poisoning by solids and liquids moved up from the fifth to the third leading cause of accidental deaths, surpassing both drownings (which decreased) and fires and burns (which remained unchanged). The latest detailed data (1986) showed a 60 per cent one-year increase in accidental deaths involving local anesthetics, including cocaine.

From 1979 to 1986, total accidental solid and liquid poisoning deaths rose 75 per cent. Two subcategories accounted for more than two thirds of that increase. Accidental deaths due to local anesthetics including cocaine rose 438 per cent, from 116 to 624. Accidental deaths involving opiates and related narcotics were up 173 per cent (from 341 to 930) during the same period.

National Safety Council

The National Safety Council, chartered by act of Congress, is a nongovernmental, not-for-profit, public service organization devoted solely to educating and influencing society to adopt safety and health policies, practices and procedures to prevent losses arising from accidents and adverse occupational or environmental exposures. It offers a wide variety of products and services to meet the safety and health needs of business, industry, government, traffic and transportation, home, farm and community organizations, schools, and individuals. Inquiries about any phase of the Council's work are invited.

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ACCIDENT FACTS 1989 EDITION

Published by ***National Safety Council***

A Nongovernmental, Not-for-Profit, Public Service Organization

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For inquiries regarding the content of *Accident Facts*, write to the Statistics Department, National Safety Council, or call 312-527-4800.

The detailed analysis of accidents in this booklet was made possible by the cooperation of many organizations, companies and individuals including: vital statistics and traffic authorities of cities and states, workers' compensation authorities, U.S. Bureau of the Census, National Center for Health Statistics, Federal Railroad Administration, Federal Highway Administration, National Highway Traffic Safety Administration, National Transportation Safety Board, National Weather Service, Mine Safety and Health Administration, Bureau of Labor Statistics, Occupational Safety and Health Administration, Consumer Product Safety Commission, Social Security Administration, National Fire Protection Association, Statistics Canada, World Health Organization, insurance companies, trade associations, schools, and community safety councils.

ALL ACCIDENTS, 1988

For the seventh consecutive year, accidental deaths were estimated to number less than 100,000 in 1988. The death total was 96,000, an increase of 1,500 or 2 per cent from the 1987 total of 94,500. A decrease in work deaths was offset by increases in motor-vehicle, home and public.

The death rate per 100,000 population, 39.1, was up 1 per cent from the rate of 38.8 in 1987. The population rate for 1988 work deaths is the lowest on record. The 1988 motor-vehicle death rate per 100 million miles (not shown below) was 2.46, also the lowest on record.

	Deaths	Change from 1987	Deaths per 100,000 Persons	Disabling Injuries[a]
All Classes[b]	**96,000**	**+2%**	**39.1**	**9,100,000**
Motor-vehicle	**49,000**	**+1%**	**19.9**	**1,800,000**
Public nonwork	44,900			1,600,000
Work	3,900			200,000
Home	200			([c])
Work	**10,600**	**–5%**	**4.3**	**1,800,000**
Nonmotor-vehicle	6,700			1,600,000
Motor-vehicle	3,900			200,000
Home	**22,500**	**+5%**	**9.2**	**3,400,000**
Nonmotor-vehicle	22,300			3,400,000
Motor-vehicle	200			([c])
Public	**18,000**	**+3%**	**7.3**	**2,300,000**

Disabling Injuries[a] by Severity of Injury, 1988

Severity of Disabling Injury	TOTAL[b]	Motor-Vehicle	Work	Home	Public
All Disabling Injuries[a]	**9,100,000**	**1,800,000**	**1,800,000**	**3,400,000**	**2,300,000**
Permanent impairments	340,000	150,000	60,000	90,000	50,000
Temporary total disabilities	8,700,000	1,700,000	1,700,000	3,300,000	2,200,000

Source: National Safety Council estimates (rounded) based on data from the National Center for Health Statistics, state industrial commissions, state traffic authorities, state departments of health, insurance companies, industrial establishments and other sources. See inside back cover for definitions.

[a] **Disabling beyond the day of accident.** Injuries are not reported on a national basis, so the totals shown are approximations based on ratios of disabling injuries to deaths developed from special studies. The totals are the best estimates for the current year; however, they should not be compared with totals shown in previous editions of *Accident Facts* to indicate year-to-year changes or trends.

[b] Deaths and injuries above for the four separate classes total more than national figures due to rounding and because some deaths and injuries are included in more than one class. For example, 3,900 work deaths involved motor vehicles and are in both the work and motor-vehicle totals; and 200 motor-vehicle deaths occurred on home premises and are in both home and motor-vehicle. The total of such duplication amounted to about 4,100 deaths and 200,000 injuries in 1988.

[c] Less than 10,000.

Costs of accidents in 1988

Accidents in which deaths or disabling injuries occurred, together with vehicle accidents and fires, cost the nation in 1988, at least

$143.4 billion

Motor-vehicle accidents . . . . $70.2 billion

This cost figure includes wage loss, medical expense, insurance administration cost, and property damage from moving motor-vehicle accidents. Not included are the cost of public agencies such as police and fire departments, courts, indirect losses to employers of off-the-job accidents to employees, the value of cargo losses in commercial vehicles, and damages awarded in excess of direct losses. Fire damage to parked motor-vehicles is not included here but is distributed to the other classes.

Work accidents . . . . $47.1 billion

This cost figure includes wage loss, medical expense, insurance administration cost, fire loss, and an estimate of indirect costs arising out of work accidents. Not included is the value of property damage other than fire loss, and indirect loss from fires.

Home accidents. . . . . $17.4 billion

This cost figure includes wage loss, medical expense, health insurance administration cost, and fire loss. Not included are the costs of property damage other than fire loss, and the indirect cost to employers of off-the-job accidents to employees.

Public accidents . . . . $10.9 billion

This cost figure includes wage loss, medical expense, health insurance administration cost, and fire loss. Not included are the costs of property damage other than fire loss, and the indirect cost to employers of off-the-job accidents to employees.

Certain Costs of Accidents by Class, 1988 ($ billions)

Cost	TOTAL[a]	Motor-Vehicle	Work	Home	Public Nonmotor-Vehicle
Total	**$143.4**	**$70.2**	**$47.1**	**$17.4**	**$10.9**
Wage loss	37.1	20.3	7.9	5.8	4.7
Medical expense	23.6	5.0	8.1	6.7	4.4
Insurance administration[b]	28.7	21.3	6.0	0.8	0.6
Fire loss	8.4	(c)	3.1	4.1	1.2
Motor-vehicle property damage	23.6	23.6	(c)	(c)	(c)
Indirect work loss	22.0	(c)	22.0	(c)	(c)

Source: National Safety Council estimates. Cost estimates are not comparable with those of previous years. As additional or more precise data become available they are used from that year forward, but previously estimated figures are not revised.

[a] Duplications between work and motor-vehicle and home and motor-vehicle are eliminated in the totals.

[b] Home and public insurance administration costs may include costs of administering medical treatment claims for some motor-vehicle injuries filed through health insurance plans.

[c] Not included, see comments by class of accident above.

1988 accident cost components

TOTAL—ALL ACCIDENTS[4] . . . . $143.4 billion

These costs include:

Wage loss . . . . $37.1 billion

Since, theoretically, a worker's contribution to the wealth of the nation is measured in terms of wages, then the total of wages lost due to accidents provides a measure of this lost productivity. For nonfatal injuries, actual wage losses are used; for fatalities and permanent disabilities, the figure used is the present value of all future earnings lost.

Medical expense . . . . $23.6 billion

Doctor fees, hospital charges, the cost of medicines, ambulance and emergency medical services, and future medical costs incurred as the result of accidental injuries are included.

Insurance administration cost . . . . $28.7 billion

This is the difference between premiums paid to insurance companies and claims paid out by them; it is their cost of doing business and is a part of the accident cost total. Claims paid by insurance companies are not identified separately, as every claim is compensation for losses such as wages, medical expenses, property damage, etc., which are included in other categories above and below. *Not* included are administrative costs of health maintenance organizations and property damage claims in home and public accidents.

Property damage in motor-vehicle accidents . . . . $23.6 billion

Includes the value of property damage to vehicles from moving motor-vehicle accidents. The damage is valued at the cost to repair the vehicle or the market value of the vehicle when damage exceeds its market value. The cost of minor damage (such as scratches or dents incurred while parking) is considered part of the normal wear and tear to vehicles and is not included.

Fire loss . . . . $ 8.4 billion

Includes losses from building fires of $7.2 billion and from nonbuilding fires, of $1.2 billion. By class of accident these totals break down as follows. Building: work $2.6 billion, home $3.9 billion, public $0.7 billion. Nonbuilding: work $0.5 billion, home $0.2 billion, public $0.5 billion.

Indirect loss from work accidents . . . . $22.0 billion

This is the money value of time lost by noninjured workers. Includes time spent filling out accident reports, giving first aid to injured workers, and time lost due to production slowdowns. This loss is conservatively estimated as equal to the sum of lost wages, medical expenses, and insurance administration cost of work accidents.

See source and footnotes on page 3.

The National Health Interview Survey

The National Health Interview Survey, conducted by the U.S. Public Health Service, is a continuous sample of households to record health data including the injuries which members of the households experienced during the two weeks prior to the interview. Of the nation's 89,000,000 households in 1987, approximately 47,000 were interviewed. The questionnaire and data preparation procedures of the survey were extensively revised in 1982, and comparison with earlier results should be made with caution.

Estimated Annual Number of Persons Injured, Restricted Activity Days and Bed Days, 1987

Class or Place	Persons Injured		Restricted Activity Days		Bed Days	
	Number	Rate[a]	Number	Rate[a]	Number	Rate[a]
All episodes:[b]	**62,073,000**	**26.0**	**621,167,000**	**260.4**	**194,151,000**	**81.4**
Moving motor vehicle:	**5,808,000**	**2.4**	**132,952,000**	**55.7**	**43,328,000**	**18.2**
Traffic	*4,875,000*	*2.0*	*114,685,000*	*48.1*	*37,688,000*	*15.8*
Work:[c]	**9,131,000**	**5.2**	**171,029,000**	**97.6**	**52,878,000**	**30.2**
Place of accident:						
Home[c]	20,968,000	8.8	150,032,000	62.9	46,823,000	19.6
Street, highway	7,694,000	3.2	144,861,000	60.7	47,288,000	19.8
Industrial place[c]	7,378,000	3.1	125,878,000	52.8	37,330,000	15.6
Other	15,801,000	6.6	141,039,000	59.1	38,369,000	16.1

Source: National Center for Health Statistics. C. A. Schoenborn and M. Marano: Current estimates from the National Health Interview Survey, United States, 1987. *Vital and Health Statistics*, Series 10, No. 166. DHHS Pub. No. (PHS) 88-1594. Public Health Service. Washington: U.S. Government Printing Office, Sept. 1988.

[a] Per 100 persons per year.

[b] Estimates are calculated for three separate characteristics: whether in a moving motor vehicle, whether at work, and by place of accident. The "all episodes" estimate includes cases unclassified for one or more of these characteristics. For this reason, and because there is duplication among categories, individual estimates do not add to the "all episodes" total.

[c] Work includes employed persons 18 years of age and over only. Home includes yard, buildings, and sidewalks on the property as well as inside the house. Industrial place does *not* include business or professional offices, farms or other nonindustrial work locations.

Injury definitions

National Health Interview Survey definitions. The National Health Interview Survey (NHIS) figures on this page and noted elsewhere in *Accident Facts* include injuries due to nonaccidental violence as well as accidental injuries. An injury is included in the NHIS totals if (1) it is *medically attended* or (2) it causes one half day or more of *restricted activity*. A *medically attended* injury is one for which a physician has been consulted (in person or by telephone) for examination, diagnosis, treatment or advice. *Restricted activity* is defined as one or more of the following types: bed day (person stayed in bed more than half a day); work-loss day (person missed more than half a day from a job or business); school-loss day (currently enrolled 5-17 year old student missed more than half a day of school); cut down day (person cuts down for more than half a day on the things he or she usually does).

National Safety Council definition of injury. A disabling injury is defined as one which results in death, some degree of permanent impairment, or renders the injured person unable to effectively perform his regular duties or activities for a full day beyond the day of the injury. This definition applies to all categories of accidents. All injury totals labeled "disabling injuries" in *Accident Facts* are based on this definition. Some *rates* in the Work section are based on OSHA definitions of recordable cases (see page 41).

Numerical differences between National Health Interview Survey totals above and the National Safety Council totals on page 2 are due mainly to differences in the injury definitions used.

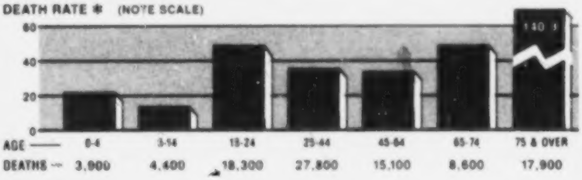
How people died accidentally in 1988

Type of accident and age of victim

All accidents

	Death Total	Change from 1987	Death Rate[2]
All accidents	96,000	+ 2%	39.1

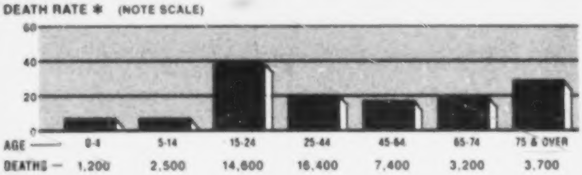
The term "accidents" covers most deaths from violence. Excluded are homicides, suicides, deaths for which none of these categories can be determined, and deaths in war operations.



Motor-vehicle accidents

	Death Total	Change from 1987	Death Rate[2]
Motor-vehicle accidents	49,000	+ 1%	19.9

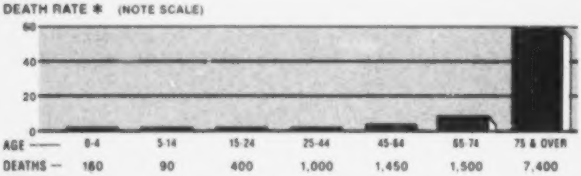
Includes deaths involving mechanically or electrically powered highway-transport vehicles in motion (except those on rails), both on and off the highway or street.



Falls

	Death Total	Change from 1987	Death Rate[2]
Falls	12,000	+ 5%	4.9

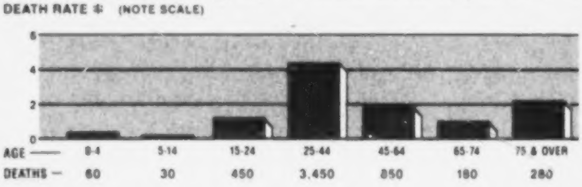
Includes deaths from falls from one level to another or on the same level. Excludes falls in or from transport vehicles, or while boarding or alighting from them.



Poisoning by solids and liquids

	Death Total	Change from 1987	Death Rate[2]
Poisoning by solids and liquids	5,300	+15%	2.2

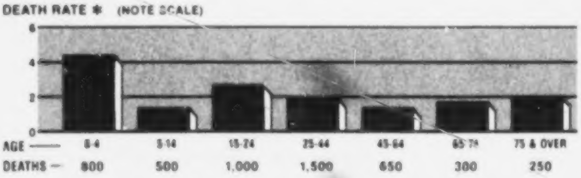
Includes deaths from drugs, medicines, mushrooms and shellfish, as well as commonly recognized poisons. Excludes poisonings from spoiled foods, salmonella, etc., which are classified as disease deaths.



Drowning

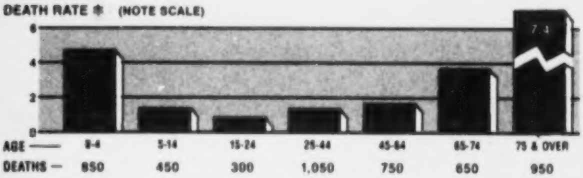
	Death Total	Change from 1987	Death Rate[2]
Drowning	5,000	- 7%	2.0

Includes all drownings (work and nonwork) in boat accidents and those resulting from swimming, playing in the water, or falling in. Excludes drownings in floods and other cataclysms.



Fires, burns, and deaths associated with fires

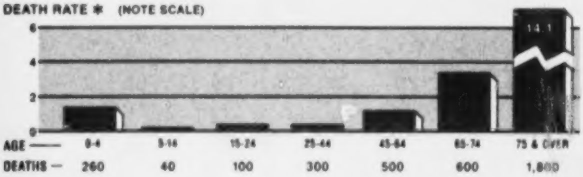
Death Total	Change from 1987	Death Rate*
5,000	0%	2.0



Includes death from fires, burns, and from injuries in conflagrations—such as asphyxiation, falls, and struck by falling objects. Excludes burns from hot objects or liquids.

Suffocation-ingested object

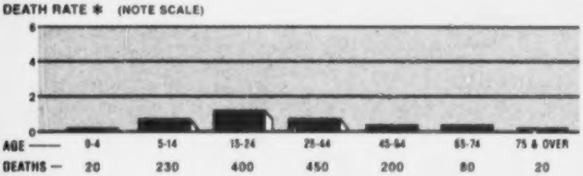
3,600	+6%	1.5



Includes deaths from accidental ingestion or inhalation of objects or food resulting in the obstruction of respiratory passages.

Firearms

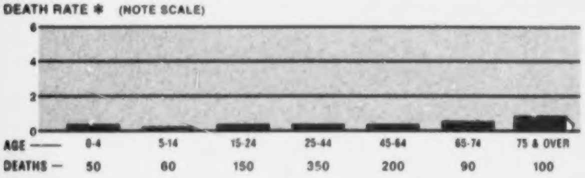
1,400	+8%	0.6



Includes deaths in firearms accidents principally in recreational activities or on home premises. Excludes deaths from explosive material or in war operations.

Poisoning by gases and vapors

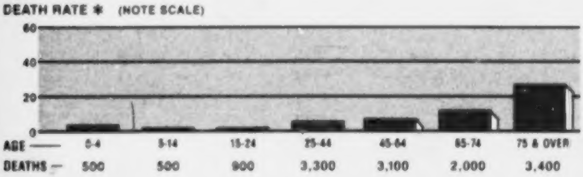
1,000	0%	0.4



Mostly carbon monoxide due to incomplete combustion, involving cooking and heating equipment and standing motor vehicles. Excludes deaths in conflagrations, or associated with transport vehicles in motion.

All other types

13,700	-2%	5.6



Most important types included are: medical complications, air transport, machinery, water transport, and excessive cold.

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*Deaths per 100,000 population in each age group.

*Deaths per 100,000 population.

Accidents versus other causes of death

Accidents are the leading cause of death among all persons aged 1 to 37. Among persons of all ages, accidents are the fourth leading cause of death. The following table shows the number of deaths and death rates by age by leading causes in 1986 (latest official figures) separately for male and female.

For youths 15 to 24 years old, accidents claim more lives than all other causes combined, and about four times more than the next leading cause of death. More than three out of four accident victims in this age group are males.

Deaths and Death Rates by Age and Sex, 1986

Cause	Number of Deaths			Death Rates[a]		
	Total	Male	Female	Total	Male	Female
All Ages						
All Causes	**2,105,361**	**1,104,005**	**1,001,356**	**873.2**	**940.7**	**809.3**
Heart disease	765,490	390,912	374,578	317.5	333.1	302.7
Cancer	469,376	250,559	218,817	194.7	213.5	176.9
Stroke (cerebrovascular disease)	149,643	59,164	90,479	62.1	50.4	73.1
Accidents	**95,277**	**65,570**	**29,707**	**39.5**	**55.9**	**24.0**
Motor-vehicle	47,865	34,088	13,777	19.9	29.0	11.1
Falls	11,444	6,043	5,401	4.7	5.1	4.4
Drowning	5,700	4,704	996	2.4	4.0	0.8
Fires, burns	4,835	2,984	1,851	2.0	2.5	1.5
Poison (solid, liquid)	4,731	3,341	1,390	2.0	2.8	1.1
Chronic obstructive pulmonary disease	76,559	47,058	29,501	31.8	40.1	23.8
Pneumonia	69,812	34,203	35,609	29.0	29.1	28.8
Diabetes mellitus	37,184	15,369	21,815	15.4	13.1	17.6
Suicide	30,904	24,226	6,678	12.8	20.6	5.4
Chronic liver disease, cirrhosis	26,159	16,797	9,362	10.9	14.3	7.6
Atherosclerosis	22,706	8,587	14,119	9.4	7.3	11.4
Nephritis and nephrosis	21,767	10,863	10,904	9.0	9.3	8.8
Homicide	21,731	16,595	5,136	9.0	14.1	4.2
Under 1 Year						
All Causes	**38,891**	**22,224**	**16,667**	**1,032.1**	**1,152.7**	**905.8**
Certain conditions originating in perinatal period	18,226	10,465	7,761	483.7	542.8	421.8
Congenital anomalies	8,244	4,459	3,785	218.8	231.3	205.7
Sudden infant death syndrome	5,278	3,187	2,091	140.1	165.3	113.6
Heart disease	982	563	419	26.1	29.2	22.8
Accidents	**909**	**492**	**417**	**24.1**	**25.5**	**22.7**
Mechanical suffocation	188	109	79	5.0	5.7	4.3
Motor-vehicle	183	94	89	4.9	4.9	4.8
Ingestion of food, object	157	96	61	4.2	5.0	3.3
Fires, burns	120	54	66	3.2	2.8	3.6
Drowning	94	47	47	2.5	2.4	2.6
Pneumonia	663	387	276	17.6	20.1	15.0
Septicemia	302	179	123	8.0	9.3	6.7
1 to 4 Years						
All Causes	**7,480**	**4,262**	**3,218**	**52.0**	**57.9**	**45.8**
Accidents	**2,934**	**1,744**	**1,190**	**20.4**	**23.7**	**16.9**
Motor-vehicle	1,005	572	433	7.0	7.8	6.2
Drowning	660	439	221	4.6	6.0	3.1
Fires, burns	648	369	279	4.5	5.0	4.0
Ingestion of food, object	123	73	50	0.9	1.0	0.7
Falls	82	52	30	0.6	0.7	0.4
Congenital anomalies	879	464	415	6.1	6.3	5.9
Cancer	569	323	246	4.0	4.4	3.5
5 to 14 Years						
All Causes	**8,788**	**5,503**	**3,285**	**26.0**	**31.7**	**19.9**
Accidents	**4,226**	**2,914**	**1,312**	**12.5**	**16.8**	**7.9**
Motor-vehicle	2,350	1,541	809	6.9	8.9	4.9
Drowning	649	507	142	1.9	2.9	0.9
Fires, burns	434	255	179	1.3	1.5	1.1
Firearms	200	165	35	0.6	1.0	0.2
Falls	55	48	7	0.2	0.3	(b)
Cancer	1,165	657	508	3.4	3.8	3.1
Congenital anomalies	453	251	202	1.3	1.4	1.2

See footnotes on page 9.

Deaths and Death Rates by Age and Sex, 1986, Cont.

Cause	Number of Deaths			Death Rates[a]		
	Total	Male	Female	Total	Male	Female
	15 to 24 Years					
All Causes	**39,929**	**29,834**	**10,095**	**102.3**	**151.4**	**52.3**
Accidents	**19,975**	**15,466**	**4,509**	**51.2**	**78.5**	**23.3**
Motor-vehicle	15,227	11,463	3,764	39.0	58.2	19.5
Drowning	1,341	1,238	103	3.4	6.3	0.5
Poison (solid, liquid)	473	341	132	1.2	1.7	0.7
Firearms	443	393	50	1.1	2.0	0.3
Fires, burns	395	250	145	1.0	1.3	0.8
Homicide	5,522	4,341	1,181	14.2	22.0	6.1
Suicide	5,120	4,276	844	13.1	21.7	4.4
	25 to 44 Years					
All Causes	**126,923**	**88,149**	**38,774**	**167.3**	**234.0**	**101.6**
Accidents	**27,201**	**21,443**	**5,758**	**35.9**	**56.9**	**15.1**
Motor-vehicle	15,844	12,103	3,741	20.9	32.1	9.8
Poison (solid, liquid)	2,885	2,248	637	3.8	6.0	1.7
Drowning	1,665	1,482	183	2.2	3.9	0.5
Falls	1,035	861	174	1.4	2.3	0.5
Fires, burns	1,003	710	293	1.3	1.9	0.8
Cancer	20,595	9,513	11,082	27.2	25.2	29.0
Heart disease	16,106	11,967	4,139	21.2	31.8	10.8
	45 to 64 Years					
All Causes	**394,190**	**244,670**	**149,520**	**875.1**	**1,136.3**	**635.9**
Cancer	136,605	73,745	62,860	303.2	342.5	267.3
Heart disease	127,294	90,089	37,205	282.6	418.4	158.2
Stroke (cerebrovascular disease)	16,428	8,665	7,763	36.5	40.2	33.0
Accidents	**14,733**	**10,577**	**4,156**	**32.7**	**49.1**	**17.7**
Motor-vehicle	6,799	4,627	2,172	15.1	21.5	9.2
Falls	1,519	1,137	382	3.4	5.3	1.6
Fires, burns	841	588	253	1.9	2.7	1.1
Poison (solid, liquid)	716	437	279	1.6	2.0	1.2
Ingestion of food, object	600	371	229	1.3	1.7	1.0
Chronic obstructive pulmonary disease	12,720	7,418	5,302	28.2	34.4	22.5
Chronic liver disease, cirrhosis	11,795	7,924	3,871	26.2	36.8	16.5
	65 to 74 Years					
All Causes	**485,539**	**283,046**	**202,493**	**2,801.4**	**3,701.4**	**2,090.8**
Heart disease	180,772	110,630	70,142	1,043.0	1,446.7	724.2
Cancer	146,803	83,119	63,684	847.0	1,086.9	657.6
Stroke (cerebrovascular disease)	28,444	14,147	14,297	164.1	185.0	147.6
Chronic obstructive pulmonary disease	25,866	16,137	9,729	149.2	211.0	100.5
Diabetes mellitus	10,269	4,564	5,705	59.2	59.7	58.9
Pneumonia	10,154	6,247	3,907	58.6	81.7	40.3
Accidents	**8,499**	**5,094**	**3,405**	**49.0**	**66.6**	**35.2**
Motor-vehicle	3,096	1,747	1,349	17.9	22.8	13.9
Falls	1,554	903	651	9.0	11.8	6.7
Surgical, medical complications	745	381	364	4.3	5.0	3.8
Ingestion of food, object	643	374	269	3.7	4.9	2.8
Fires, burns	562	333	229	3.2	4.4	2.4
	75 Years and Over					
All Causes	**1,003,621**	**426,317**	**577,304**	**8,479.4**	**10,218.5**	**7,532.7**
Heart disease	438,564	176,608	261,956	3,705.3	4,233.2	3,418.0
Cancer	161,427	81,847	79,580	1,363.9	1,961.8	1,038.4
Stroke (cerebrovascular disease)	100,978	34,339	66,639	853.1	823.1	869.5
Pneumonia	50,693	22,301	28,392	428.3	534.5	370.5
Chronic obstructive pulmonary disease	36,793	22,860	13,933	310.9	547.9	181.8
Atherosclerosis	18,811	6,235	12,576	158.9	149.4	164.1
Diabetes mellitus	16,993	5,769	11,224	143.6	138.3	146.5
Accidents	**16,800**	**7,840**	**8,960**	**141.9**	**187.9**	**116.9**
Falls	6,765	2,674	4,091	57.2	64.1	53.4
Motor-vehicle	3,361	1,941	1,420	28.4	46.5	18.5
Ingestion of food, object	1,726	790	936	14.6	18.9	12.2
Surgical, medical complications	1,273	523	750	10.8	12.5	9.8
Fires, burns	832	425	407	7.0	10.2	5.3

Source: Deaths are for 1986, latest official figures from National Center for Health Statistics, Public Health Service, U.S. Department of Health and Human Services. The all causes and accident totals for each age group include deaths not shown separately.

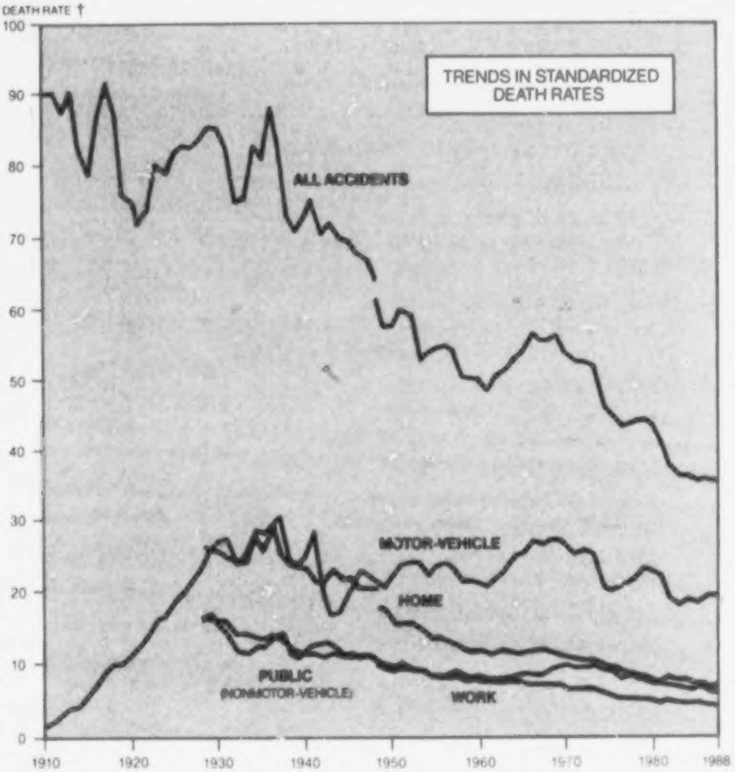
[a] Deaths per 100,000 population in each age group.

[b] Less than 0.05.

Trends in accidental death rates

(See pages 14 and 15 for death totals and crude rates.)

Between 1912 and 1988, accidental deaths per 100,000 population were reduced 52 per cent from 82 to 39. The 76 per cent reduction from 79 to 19 in the nonmotor-vehicle death rate was offset in part by the sevenfold increase in the motor-vehicle death rate from 3 to 20. The reduction in the overall rate during a period when the nation's population more than doubled has resulted in 3,000,000 fewer people being killed accidentally than would have been killed if the rate had not been reduced.



Per Cent Change in Standardized Death Rates

	from 1987	from 1978
All Accidents	**+*%**	**–20%**
Motor-Vehicle	**+1%**	**–15%**
Work	**–6%**	**–29%**
Home	**+4%**	**–17%**
Public	**0%**	**–31%**

The age distribution of the population has changed greatly during this century, and these shifts can affect the accidental death rate. For example, if the proportion of the population aged 75 years and over increases, the overall accidental death rate will also tend to increase since the 75 and over age group has a much higher than average death rate. In order to eliminate the effects of population shifts over long periods of time, death rates can be standardized to the age distribution of the population in any one particular year (chosen as 1940). The 1988 standardized death rate of 35.8 per 100,000 population for all accidents was less than 0.5 per cent above the 1987 rate. The 1988 rate for work showed a decrease, while both motor-vehicle and home experienced increases and public remained unchanged. Standardized death rates from 1910 to 1988 are shown in the chart above.

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†Deaths per 100,000 population, adjusted to 1940 age distribution. The break at 1948 shows the estimated effect of classification changes.

*Less than 0.5 per cent.

Trends in nonmotor-vehicle deaths

In 1988, falls, solid and liquid poisonings, drownings, and fires and burns were the leading causes of nonmotor-vehicle accidental deaths. Also in 1988, individuals aged 75 and over were the most frequent victims of nonmotor-vehicle accidental deaths in terms of both deaths and death rates.

The 1988 death rate of 4.9 and death total of 12,000 for accidental falls were both a slight increase over 1987. However, since 1978, the death rate and the number of falls fatalities have declined for all age groups. Individuals aged 65 and over suffer the most accidental deaths due to falls, accounting for at least 70 per cent of falls deaths each year since 1978. Over one half of falls deaths occur in the home.

Beginning in 1988, accidental poisonings from solid and liquid substances have become the third leading cause of accidental death. Although the death rate for several age groups has dropped since 1978, the rate for the 25 to 44 year group has more than doubled from 2.0 to 4.4.

The accidental drowning death total of 5,000 for 1988 and the death rate of 2.0 were both the lowest on record. Deaths have decreased by 29 per cent since 1978 and the death rate has decreased by 36 per cent. Drowning death rates have fallen in all age groups since 1978, however the rate decreases among 5 to 14 and 15 to 24 year olds have been the most substantial.

For fires and burns, the death total of 5,000 was unchanged from 1987 and the death rate decreased slightly from 2.1 to 2.0. However, since 1978, the death rate has decreased 27 per cent and deaths have fallen 19 per cent. Children less than five and individuals over 65 have the highest death rates of fires and burns accidents. About 80 per cent of fires and burns deaths occur in the home.

While you speak!

While you make a 10-minute safety speech—2 persons will be killed and about 170 will suffer a disabling injury. Costs will amount to $2,700,000.

On the average, there are 11 accidental deaths and about 1,040 disabling injuries every hour during the year. About one half of the deaths occur in motor-vehicle accidents while about one third of the injuries occur in the home.

Accidents in the nation by class of accident and severity of injury occurred at the following rates in 1988:

Class of Accident	Severity	One Every—	No. per Hour	No. per Day	No. per Week	Total 1988
All accidents	**Deaths**	**5 minutes**	**11**	**263**	**1,850**	**96,000**
	Injuries	3 seconds	1,040	24,900	175,000	9,100,000
Motor-vehicle	**Deaths**	**11 minutes**	**6**	**134**	**940**	**49,000**
	Injuries	18 seconds	210	4,900	34,600	1,800,000
Work	**Deaths**	**50 minutes**	**1**	**29**	**200**	**10,600**
	Injuries	18 seconds	210	4,900	34,600	1,800,000
Workers off-job	**Deaths**	**14 minutes**	**4**	**102**	**720**	**37,300**
	Injuries	11 seconds	320	7,700	53,800	2,800,000
Home	**Deaths**	**23 minutes**	**3**	**61**	**430**	**22,500**
	Injuries	9 seconds	390	9,300	65,400	3,400,000
Public nonmotor-vehicle	**Deaths**	**29 minutes**	**2**	**49**	**350**	**18,000**
	Injuries	14 seconds	260	6,300	44,200	2,300,000

Source: National Safety Council estimates.

All Deaths Due to Injury

Type of Accident or Manner of Injury	1986[a]	1985	1984
TOTAL DEATHS DUE TO INJURIES, E800-E999[b]	**151,032**	**145,648**	**145,012**
All Accidental Deaths, E800-E949	**95,277**	**93,457**	**92,911**
Transport accidents, E800-E848	**50,925**	**49,249**	**49,421**
Railway, E800-E807	556	551	570
Motor-vehicle, E810-E825	47,865	45,901	46,263
Other road vehicle, E826-E829	234	231	190
Water transport, E830-E838	1,102	1,111	1,131
Drowning (excluded from drowning below), E830, E832	*923*	*909*	*944*
Other water transport, E831, E833-E838	*179*	*202*	*187*
Air and space transport, E840-E845	1,148	1,428	1,234
Vehicle accidents not elsewhere classifiable, E846-E848	20	27	33
Poisoning by solids and liquids (See also page 94), E850-E866	**4,731**	**4,091**	**3,808**
Drugs, medicaments and biologicals, E850-E858	4,187	3,612	3,266
Analgesics, antipyretics, and antirheumatics, E850	*1,279*	*1,209*	*926*
Barbiturates, E851	*49*	*42*	*60*
Other sedatives and hypnotics, E852	*30*	*32*	*34*
Tranquilizers, E853	*92*	*102*	*84*
Other psychotropic agents, E854	*205*	*165*	*168*
Other drugs acting on central and autonomic nervous system, E855	*685*	*448*	*477*
Antibiotics, E856	*63*	*50*	*61*
Anti-infectives, E857	*6*	*4*	*6*
Other drugs, E858	*1,778*	*1,560*	*1,450*
Poisoning by other solids and liquids, E860-E866	544	479	542
Alcohol, E860	*352*	*305*	*346*
Cleansing, polishing agents, disinfectants, paints, varnishes, E861	*6*	*10*	*11*
Petroleum products, other solvents and their vapors, E862	*84*	*75*	*69*
Agricultural, horticultural chemical, pharmaceutical preparations, E863	*20*	*21*	*31*
Corrosives and caustics, E864	*17*	*11*	*18*
Foodstuffs and poisonous plants, E865	*6*	*6*	*5*
Other and unspecified solids and liquids, E866	*59*	*51*	*62*
Poisoning by gases and vapors (See also page 94), E867-E869	**1,009**	**1,079**	**1,103**
Gas distributed by pipeline, E867	29	49	48
Other utility gas and other carbon monoxide, E868	816	680	865
Motor-vehicle exhaust gas, E868.2	*475*	*488*	*511*
Others, not motor-vehicle exhaust gas, E868.0, E868.1, E868.3-E868.9	*341*	*392*	*354*
Other gases and vapors, E869	164	150	190
Complications, misadventures of surgical, medical care, E870-E879	**2,873**	**2,674**	**2,463**
Falls, E880-E888	**11,444**	**12,001**	**11,937**
Fall on or from stairs or steps, E880	1,137	1,176	1,143
Fall on or from ladders or scaffolding, E881	325	348	330
Fall from or out of building or other structure, E882	650	661	659
Fall into hole or other opening in surface, E883	119	120	109
Other fall from one level to another, E884	1,003	1,060	1,028
Fall on same level from slipping, tripping or stumbling, E885	389	404	429
Fall on same level from collision, pushing or shoving, E886	5	7	7
Fracture, cause unspecified, E887	2,707	2,986	2,760
Other and unspecified fall, E888	5,109	5,239	5,472
Fire and flames, E890-E899	**4,835**	**4,938**	**5,010**
Conflagration, E890-E892	4,175	4,202	4,269
Ignition of clothing, E893	179	232	223
Ignition of highly inflammable material, E894	56	69	79
Other and unspecified fire and flames, E895-E899	425	435	439
Natural and environmental factors, E900-E909	**1,501**	**1,904**	**1,600**
Excessive heat, E900	364	226	222
Excessive cold, E901	619	1,010	731
Hunger, thirst, exposure and neglect, E904	207	195	198
Poisoning by and toxic reaction to venomous animals, plants, E905	63	55	62
Venomous snakes, lizards, and spiders, E905.0, E905.1	*13*	*8*	*8*
Hornets, wasps and bees, E905.3	*42*	*41*	*48*
Other and unspecified animals, plants, E905.2, E905.4-E905.9	*8*	*6*	*6*
Other injury caused by animals, E906	93	101	92
Dog bite, E906.0	*15*	*15*	*14*
Other and unspecified injury by animal, E906.1-E906.9	*78*	*86*	*78*
Lightning, E907	78	85	91
Cataclysmic storms, and floods resulting from storms, E908	58	198	173
Cataclysmic earth surface movements and eruptions, E909	12	23	24
Other natural and environmental factors, E902, E903	7	11	7
Other accidents, E910-E928	**17,099**	**16,674**	**16,701**
Drowning, submersion (excluding water transport drownings above), E910	4,777	4,407	4,444
During sport or recreation, E910.0-E910.2	*1,219*	*1,081*	*1,157*
In bathtub, E910.4	*343*	*353*	*353*
Other, unspecified drowning, submersion, E910.3, E910.8, E910.9	*3,215*	*2,973*	*2,934*
Inhalation and ingestion of food, E911	1,709	1,663	1,755
Inhalation and ingestion of other object, E912	1,983	1,888	1,786

See source and footnotes on page 13

All Deaths Due to Injury, Cont.

Type of Accident or Manner of Injury	1986[a]	1985	1984
Mechanical suffocation, E913	941	920	913
In bed or cradle, E913.0	*172*	*167*	*172*
By plastic bag, E913.1	*48*	*39*	*37*
Due to lack of air (in refrigerator, other enclosed space), E913.2	*31*	*21*	*19*
By falling earth (noncataclysmic cave-in), E913.3	*114*	*132*	*118*
Other and unspecified mechanical suffocation, E913.8, E913.9	*576*	*561*	*567*
Struck by falling object, E916	888	903	984
Struck against or by objects or persons, E917	243	255	249
Caught in or between objects, E918	112	105	115
Machinery, E919	1,202	1,288	1,277
Agricultural machines, E919.0	*649*	*693*	*699*
Lifting machines and appliances, E919.2	*185*	*218*	*205*
Earth moving, scraping and other excavating machines, E919.7	*116*	*87*	*100*
Other, unspecified machinery, E919.1, E919.3-E919.6, E919.8, E919.9	*252*	*[illegible]0*	*273*
Cutting or piercing instruments or objects, E920	118	132	131
Firearm missile, E922	1,452	1,649	1,668
Handgun, E922.0	*183*	*190*	*225*
Shotgun (automatic), E922.1	*190*	*215*	*214*
Hunting rifle, E922.2	*108*	*113*	*118*
Other and unspecified firearm missile, E922.3-E922.9	*971*	*1,131*	*1,111*
Explosive material, E923	242	296	247
Fireworks, E923.0	*8*	*11*	*7*
Explosive gases, E923.2	*116*	*138*	*114*
Other and unspecified explosive material, E923.1, E923.8, E923.9	*118*	*147*	*126*
Hot substance or object, corrosive material and steam, E924	134	176	142
Electric current, E925	854	802	888
Domestic wiring and appliances, E925.0	*150*	*146*	*148*
Generating plants, distribution stations, transmission lines, E925.1	*182*	*196*	*215*
Industrial wiring, appliances and electrical machinery, E925.2	*89*	*69*	*68*
Other and unspecified electric current, E925.8, E925.9	*433*	*391*	*457*
Radiation, E926	0	0	0
Other and unspecified, E914, E915, E921, E927, E928	2,444	2,190	2,102
Late effects (deaths more than one year after accident), E929	**664**	**669**	**703**
Adverse effects of drugs in therapeutic use, E930-E949	**196**	**178**	**165**
All Suicide Deaths, E950-E959	**30,904**	**29,453**	**29,286**
Poisoning by solid and liquid, E950	3,070	2,937	2,981
Poisoning by gases and vapors, E951, E952	2,966	2,767	2,628
Motor-vehicle exhaust gas, E952.0	*2,450*	*2,308*	*2,210*
Other and unspecified gases and vapors, E951, E952.1-E952.9	*516*	*459*	*418*
Hanging, strangulation and suffocation, E953	4,606	4,264	4,341
Drowning, E954	493	466	482
Firearms, E955.0-E955.4	18,153	17,363	17,113
Handgun, E955.0	*3,319*	*2,981*	*3,006*
Shotgun, E955.1	*2,365*	*2,301*	*2,197*
Hunting rifle, E955.2	*1,146*	*1,138*	*1,070*
Other and unspecified firearm, E955.3, E955.4	*11,323*	*10,943*	*10,840*
Cutting and piercing instruments, E956	432	434	446
Jumping from high places, E957	680	721	721
Other, unspecified suicide and late effects, E955.5, E955.9, E958, E959	504	501	574
All Homicide Deaths, E960-E969	**21,462**	**19,628**	**19,510**
Assault by hanging and strangulation, E963	1,006	934	877
Assault by firearm, E965.0-E965.4	13,029	11,836	11,815
Handgun, E965.0	*1,088*	*903*	*938*
Shotgun, E965.1	*1,230*	*1,082*	*1,127*
Hunting rifle, E965.2	*198*	*207*	*189*
Other and unspecified firearm, E965.3, E965.4	*10,513*	*9,644*	*9,561*
Assault by cutting and piercing instrument, E966	4,342	3,994	4,015
Child battering and other maltreatment, E967	215	154	184
Other, unspecified assault and late effects, E960-E962, E964, E965.5-E965.9, E968, E969	2,870	2,710	2,619
Legal Intervention, E970-E978	**269**	**265**	**286**
Undetermined Whether Accidentally or Purposely Inflicted, E980-E989	**3,108**	**2,826**	**2,996**
Poisoning by solid and liquid, E980	1,033	832	810
Poisoning by gases and vapors, E981, E982	190	152	184
Motor-vehicle exhaust gas, E982.0	*122*	*93*	*127*
Other and unspecified gases and vapors, E981, E982.1-E982.9	*68*	*59*	*57*
Drowning, E984	323	365	370
Firearms, E985.0-E985.4	492	476	482
Other, unspecified undetermined deaths and late effects, E983, E985.5-E989	1,070	1,001	1,150
Deaths From Operations of War, E990-E999	**12**	**19**	**23**

Source: National Center for Health Statistics. Deaths are classified on the basis of the Ninth Revision of "The International Classification of Diseases" (ICD), which became effective in 1979.

[a] Latest official figures.

[b] Numbers following titles refer to External Cause of Injury and Poisoning classifications in the ICD.

Principal Classes of Accidental Deaths, 1903-1988

Year	TOTAL[a]		Motor-Vehicle		Work		Home		Public Nonmotor-Vehicle	
	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]
1903	70,600	87.2	(c)		(c)		(c)		(c)	
1904	71,500	86.6	(c)		(c)		(c)		(c)	
1905	70,900	84.2	(c)		(c)		(c)		(c)	
1906	80,000	93.2	400	0.5	(c)		(c)		(c)	
1907	81,900	93.6	700	0.8	(c)		(c)		(c)	
1908	72,300	81.2	800	0.9	(c)		(c)		(c)	
1909	72,700	80.1	1,300	1.4	(c)		(c)		(c)	
1910	77,900	84.4	1,900	2.0	(c)		(c)		(c)	
1911	79,300	84.7	2,300	2.5	(c)		(c)		(c)	
1912	78,400	82.5	3,100	3.3	(c)		(c)		(c)	
1913	82,500	85.5	4,200	4.4	(c)		(c)		(c)	
1914	77,000	78.6	4,700	4.8	(c)		(c)		(c)	
1915	76,200	76.7	6,600	6.6	(c)		(c)		(c)	
1916	84,800	84.1	8,200	8.1	(c)		(c)		(c)	
1917	90,100	88.2	10,200	10.0	(c)		(c)		(c)	
1918	85,100	82.1	10,700	10.3	(c)		(c)		(c)	
1919	75,500	71.9	11,200	10.7	(c)		(c)		(c)	
1920	75,900	71.2	12,500	11.7	(c)		(c)		(c)	
1921	74,000	68.4	13,900	12.9	(c)		(c)		(c)	
1922	76,300	69.4	15,300	13.9	(c)		(c)		(c)	
1923	84,400	75.7	18,400	16.5	(c)		(c)		(c)	
1924	85,600	75.6	19,400	17.1	(c)		(c)		(c)	
1925	90,000	78.4	21,900	19.1	(c)		(c)		(c)	
1926	91,700	78.7	23,400	20.1	(c)		(c)		(c)	
1927	92,700	78.4	25,800	21.8	(c)		(c)		(c)	
1928	95,000	79.3	28,000	23.4	19,000	15.8	30,000	24.9	21,000	17.4
1929	98,200	80.8	31,200	25.7	20,000	16.4	30,000	24.6	20,000	16.4
1930	99,100	80.5	32,900	26.7	19,000	15.4	30,000	24.4	20,000	16.3
1931	97,300	78.5	33,700	27.2	17,500	14.1	29,000	23.4	20,000	16.1
1932	89,000	71.3	29,500	23.6	15,000	12.0	29,000	23.2	18,000	14.4
1933	90,932	72.4	31,363	25.0	14,500	11.6	29,500	23.6	18,500	14.7
1934	100,977	79.9	36,101	28.6	16,000	12.7	34,000	26.9	18,000	14.2
1935	99,773	78.4	36,369	28.6	16,500	13.0	32,000	25.2	18,000	14.2
1936	110,052	85.9	38,089	29.7	18,500	14.5	37,000	28.9	19,500	15.2
1937	105,205	81.7	39,643	30.8	19,000	14.8	32,000	24.8	18,000	14.0
1938	93,805	72.3	32,582	25.1	16,000	12.3	31,000	23.9	17,000	13.1
1939	92,623	70.8	32,386	24.7	15,500	11.8	31,000	23.7	16,000	12.2
1940	96,885	73.4	34,501	26.1	17,000	12.9	31,500	23.9	16,500	12.5
1941	101,513	76.3	39,969	30.0	18,000	13.5	30,000	22.5	16,500	12.4
1942	95,889	71.6	28,309	21.1	18,000	13.4	30,500	22.8	16,000	12.0
1943	99,038	73.8	23,823	17.8	17,500	13.0	33,500	25.0	17,000	12.7
1944	95,237	71.7	24,282	18.3	16,000	12.0	32,500	24.5	16,000	12.0
1945	95,918	72.4	28,076	21.2	16,500	12.5	33,500	25.3	16,000	12.1
1946	98,033	70.0	33,411	23.9	16,500	11.8	33,000	23.6	17,500	12.5
1947	99,579	69.4	32,697	22.8	17,000	11.9	34,500	24.1	18,000	12.6
1948 (5th Revn.)[d]	98,001	67.1	32,259	22.1	16,000	11.0	35,000	24.0	17,000	11.6
1948 (6th Revn.)[d]	93,000	63.7	32,259	22.1	16,000	11.0	31,000	21.2	16,000	11.0
1949	90,106	60.6	31,701	21.3	15,000	10.1	31,000	20.9	15,000	10.1
1950	91,249	60.3	34,763	23.0	15,500	10.2	29,000	19.2	15,000	9.9
1951	95,871	62.5	36,996	24.1	16,000	10.4	30,000	19.6	16,000	10.4
1952	96,172	61.8	37,794	24.3	15,000	9.6	30,500	19.6	16,000	10.3
1953	95,032	60.1	37,955	24.0	15,000	9.5	29,000	18.3	16,500	10.4
1954	90,032	55.9	35,586	22.1	14,000	8.7	28,000	17.4	15,500	9.6
1955	93,443	56.9	38,426	23.4	14,200	8.6	28,500	17.3	15,500	9.4
1956	94,780	56.6	39,628	23.7	14,300	8.5	28,000	16.7	16,000	9.6
1957	95,307	55.9	38,702	22.7	14,200	8.3	28,000	16.4	17,500	10.3
1958	90,604	52.3	36,981	21.3	13,300	7.7	26,500	15.3	16,500	9.5
1959	92,080	52.2	37,910	21.5	13,800	7.8	27,000	15.3	16,500	9.3
1960	93,806	52.1	38,137	21.2	13,800	7.7	28,000	15.6	17,000	9.4
1961	92,249	50.4	38,091	20.8	13,500	7.4	27,000	14.8	16,500	9.0
1962	97,139	52.3	40,804	22.0	13,700	7.4	28,500	15.3	17,000	9.2
1963	100,669	53.4	43,564	23.1	14,200	7.5	28,500	15.1	17,500	9.3
1964	105,000	54.9	47,700	25.0	14,200	7.4	28,000	14.6	18,500	9.7
1965	108,004	55.8	49,163	25.4	14,100	7.3	28,500	14.7	19,500	10.1
1966	113,563	58.1	53,041	27.1	14,500	7.4	29,500	15.1	20,000	10.2

See source and footnotes on page 15.

Principal Classes of Accidental Deaths, 1903-1988, Cont.

Year	TOTAL[a]		Motor-Vehicle		Work		Home		Public Nonmotor-Vehicle	
	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]
1967	113,169	57.3	52,924	26.8	14,200	7.2	29,000	14.7	20,500	10.4
1968	114,864	57.6	54,862	27.5	14,300	7.2	28,000	14.0	21,500	10.8
1969	116,385	57.8	55,791	27.7	14,300	7.1	27,500	13.7	22,500	11.2
1970	114,638	56.2	54,633	26.8	13,800	6.8	27,000	13.2	23,500	11.5
1971	113,439	54.8	54,381	26.3	13,700	6.6	26,500	12.8	23,500	11.4
1972	115,448	55.2	56,278	26.9	14,000	6.7	26,500	12.7	23,500	11.2
1973	115,821	54.8	55,511	26.3	14,300	6.8	26,500	12.5	24,500	11.6
1974	104,622	49.0	46,402	21.8	13,500	6.3	26,000	12.2	23,000	10.8
1975	103,030	47.8	45,853	21.3	13,000	6.0	25,000	11.6	23,000	10.6
1976	100,761	46.3	47,038	21.6	12,500	5.7	24,000	11.0	21,500	10.0
1977	103,202	47.0	49,510	22.5	12,900	5.9	23,200	10.6	22,200	10.1
1978	105,561	47.5	52,411	23.6	13,100	5.9	22,800	10.3	22,000	9.9
1979	105,312	46.9	53,524	23.8	13,000	5.8	22,500	10.0	21,000	9.4
1980	105,718	46.5	53,172	23.4	13,200	5.8	22,800	10.0	21,300	9.4
1981	100,704	43.9	51,385	22.4	12,500	5.4	21,700	9.4	19,800	8.6
1982	94,082	40.6	45,779	19.7	11,900	5.1	21,200	9.1	19,500	8.4
1983	92,488	39.5	44,452	19.0	11,700	5.0	21,200	9.0	19,400	8.3
1984	92,911	39.3	46,263	19.6	11,500	4.9	21,200	9.0	18,300	7.7
1985	93,457	39.1	45,901	19.2	11,500	4.8	21,600	9.0	18,800	7.9
1986	95,277	39.5	47,865	19.9	11,100	4.6	21,700	9.0	18,700	7.8
1987	94,500	38.8	48,400	19.9	11,100	4.6	21,500	8.8	17,500	7.2
1988	96,000	39.1	49,000	19.9	10,600	4.3	22,500	9.2	18,000	7.3
				Changes						
1978 to 1988	**−9%**	**−18%**	**−7%**	**−16%**	**−19%**	**−27%**	**−1%**	**−11%**	**−18%**	**−26%**
1987 to 1988	**+2%**	**+ 1%**	**+1%**	**0%**	**− 5%**	**− 7%**	**+5%**	**+ 5%**	**+ 3%**	**+ 1%**

Source: Total and motor-vehicle deaths, 1903-1932 based on National Center for Health Statistics death registration states; 1933-1948 (5th Revn.), 1949-1963, 1965-1986 are NCHS totals for the U.S. All other figures are National Safety Council estimates: 1988 preliminary, 1987 revised. See page 31 for comparability.

[a] Duplications between Motor-Vehicle, Work and Home are eliminated in the TOTAL column.

[b] Rates are deaths per 100,000 population.

[c] Data insufficient to estimate yearly totals.

[d] In 1948, a revision was made in the International List of Causes of Death. The first figures for 1948 are comparable with those for earlier years, the second with those for later years.

Estimated Structure Fires and Loss by Property Use, 1988

The table below shows the number of fires and loss by property use for structure fires in 1988, as estimated by the National Fire Protection Association. Structure and nonstructure fires together numbered 2,436,500 in 1988, with a property loss of $8,352,000,000.

Property Use	Fires		Loss	
	Number	%	$ millions	%
Total	**745,000**	**100.0%**	**7,188**	**100.0%**
Residential	552,500	74.2	4,020	55.9
One- and two-family dwellings[a]	*432,500*	*58.1*	*3,349*	*46.6*
Apartments	*106,000*	*14.2*	*548*	*7.6*
Hotels and motels	*8,000*	*1.1*	*100*	*1.4*
Other residential	*6,000*	*0.8*	*23*	*0.3*
Storage in structures[b]	50,000	6.7	735	10.2
Stores and offices	38,000	5.1	754	10.5
Special structures	33,500	4.5	168	2.4
Industry, utility, defense[b]	27,000	3.6	1,079	15.0
Public assembly	20,000	2.7	297	4.1
Institutional	14,000	1.9	23	0.3
Educational	10,000	1.3	112	1.6

Source: Estimates of the National Fire Protection Association based on data reported by fire departments responding to the 1988 National Fire Experience Survey. In addition to the structure fires and losses listed above, there were 675,500 fires in brush and grass wildlands with no value or loss estimated, 459,000 highway vehicle fires with $798,000,000 loss, 333,500 rubbish fires (including dumpsters) with no value or loss estimated, 63,000 fires outside of structures involving outside storage, crops, timber, etc. but excluding vehicles with $185,000,000 loss, 18,500 other vehicle fires with $143,000,000 loss and 142,000 miscellaneous fires with $38,000,000 loss.

[a] Includes mobile homes.

[b] Incidents for these property uses handled by private fire brigades or fixed suppression systems are not included.

Accidental Deaths and Death Rates by Age, 1903-1988

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[d]
				DEATHS				
1903	70,600	9,400	8,200	10,300	20,100	12,600	10,000	
1904	71,500	9,700	9,000	10,500	19,900	12,500	9,900	
1905	70,900	9,800	8,400	10,600	19,600	12,600	9,900	
1906	80,000	10,000	8,400	13,000	24,000	13,600	11,000	
1907	81,900	10,500	8,300	13,400	24,900	14,700	10,100	
1908	72,300	10,100	7,600	11,300	20,500	13,100	9,700	
1909	72,700	9,900	7,400	10,700	21,000	13,300	10,400	
1910	77,900	9,900	7,400	11,900	23,600	14,100	11,000	
1911	79,300	11,000	7,500	11,400	22,400	15,100	11,900	
1912	78,400	10,600	7,900	11,500	22,200	14,700	11,500	
1913	82,500	9,800	7,400	12,200	24,500	16,500	12,100	
1914	77,000	10,600	7,900	11,000	21,400	14,300	11,800	
1915	76,200	10,300	8,200	10,800	20,500	14,300	12,100	
1916	84,800	11,600	9,100	7,700	24,900	17,800	13,700	
1917	90,100	11,600	9,700	11,700	24,400	18,500	14,200	
1918	85,100	10,600	10,100	10,600	21,900	17,700	14,200	
1919	75,500	10,100	10,000	10,200	18,600	13,800	12,800	
1920	75,900	10,200	9,900	10,400	18,100	13,900	13,400	
1921	74,000	9,600	9,500	9,800	18,000	13,900	13,200	
1922	76,300	9,700	9,500	10,000	18,700	14,500	13,900	
1923	84,400	9,900	9,800	11,000	21,500	16,900	15,300	
1924	85,600	10,200	9,900	11,900	20,900	16,800	15,900	
1925	90,000	9,700	10,000	12,400	22,200	18,700	17,000	
1926	91,700	9,500	9,900	12,600	22,700	19,200	17,800	
1927	92,700	9,200	9,900	12,900	22,900	19,700	18,100	
1928	95,000	8,900	9,800	13,100	23,300	20,600	19,300	
1929	98,200	8,600	9,800	14,000	24,300	21,500	20,000	
1930	99,100	8,200	9,100	14,000	24,300	22,200	21,300	
1931	97,300	7,800	8,700	13,500	23,100	22,500	21,700	
1932	89,000	7,100	8,100	12,000	20,500	20,100	21,200	
1933	90.932	6,948	8,195	12,225	21,005	20,819	21,740	
1934	100.977	7,034	8,272	13,274	23,288	24,197	24,912	
1935	99,773	6,971	7,808	13,168	23,411	23,457	24,958	
1936	110.052	7,471	7,866	13,701	24,990	26,535	29,489	
1937	105,205	6,969	7,704	14,302	23,955	24,743	27,532	
1938	93,805	6,646	6,593	12,129	20,464	21,689	26,284	
1939	92,628	6,668	6,378	12,066	20,164	20,842	26,505	
1940	96,885	6,851	6,466	12,763	21,166	21,840	27,799	
1941	101,513	7,052	6,702	14,346	22,983	22,509	27,921	
1942	95,889	7,220	6,340	13,732	21,141	20,764	26,692	
1943	99,038	8,039	6,636	15,278	20,212	20,109	28,764	
1944	95,237	7,912	6,704	14,750	19,115	19,097	27,659	
1945	95,918	7,741	6,836	12,446	19,393	20,097	29,405	
1946	98,033	7,949	6,545	13,366	20,705	20,249	29,219	
1947	99,579	8,219	6,069	13,166	21,155	20,513	30,457	
1948 (5th Revn.)[h]	98,001	8,387	5,859	12,595	20,274	19,809	31,077	
1948 (6th Revn.)[h]	93,000	8,350	5,850	12,600	20,300	19,300	9,800	16,800
1949	90,106	8,469	5,539	11,522	19,432	18,302	9,924	16,918
1950	91,249	8,389	5,519	12,119	20,663	18,665	9,750	16,144
1951	95,871	8,769	5,892	12,366	22,363	19,610	10,218	16,653
1952	96,172	8,871	5,980	12,787	21,950	19,892	10,026	16,667
1953	95,032	8,678	6,136	12,837	21,422	19,479	9,927	16,553
1954	90,032	8,380	5,939	11,801	20,023	18,299	9,652	15,938
1955	93,443	8,099	6,099	12,742	29,911	19,199	9,929	16,464
1956	94,780	8,173	6,319	13,545	20,986	19,207	10,160	16,393
1957	95,307	8,423	6,454	12,973	20,949	19,495	10,076	16,937
1958	90,604	8,789	6,514	12,744	19,658	18,095	9,431	15,373
1959	92,080	8,748	6,511	13,269	19,666	18,937	9,475	15,474
1960	93,806	8,950	6,836	13,457	19,600	19,385	9,689	15,829
1961	92,249	8,622	6,717	13,431	19,273	19,134	9,452	15,620
1962	97,139	8,705	6,751	14,557	19,955	20,335	10,149	16,687
1963	100,669	8,688	6,962	15,889	20,529	21,262	10,194	17,145
1964	100,500	8,670	7,400	17,420	22,080	22,100	10,400	16,930
1965	108,004	8,586	7,391	18,688	22,228	22,900	10,430	17,781
1966	113,563	8,507	7,958	21,030	23,134	24,022	10,706	18,206

See source and footnotes on page 18.

Accidental Deaths and Death Rates by Age, 1903-1988, Cont.

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[d]
1967	113,169	7,825	7,874	21,645	23,255	23,826	10,645	18,099
1968	114,864	7,263	8,369	23,012	23,684	23,896	10,961	17,679
1969	116,385	6,973	8,186	24,668	24,410	24,192	10,643	17,313
1970	114,638	6,594	8,203	24,336	23,979	24,164	10,644	16,718
1971	113,439	6,496	8,143	24,733	23,535	23,240	10,494	16,798
1972	115,448	6,142	8,242	25,762	23,852	23,658	10,446	17,346
1973	115,821	6,037	8,102	26,550	24,750	23,059	10,243	17,080
1974	104,622	5,335	7,037	24,200	22,547	20,334	9,323	15,846
1975	103,030	4,948	6,818	24,121	22,877	19,643	9,220	15,403
1976	100,761	4,692	6,308	24,316	22,399	19,000	8,823	15,223
1977	103,202	4,470	6,305	25,619	23,460	19,167	9,006	15,175
1978	105,561	4,766	6,118	26,622	25,024	18,774	9,072	15,185
1979	105,312	4,429	5,689	26,574	26,097	18,346	9,013	15,164
1980	105,718	4,479	5,224	26,206	26,722	18,140	8,997	15,950
1981	100,704	4,130	4,866	23,582	26,928	17,339	8,639	15,220
1982	94,082	4,108	4,504	21,306	25,135	15,907	8,224	14,898
1983	92,488	3,999	4,321	19,756	24,996	15,444	8,336	15,636
1984	92,911	3,652	4,198	19,801	25,498	15,273	8,424	16,065
1985	93,457	3,746	4,252	19,161	25,940	15,251	8,583	16,524
1986	95,277	3,843	4,226	19,975	27,201	14,733	8,499	16,800
1987	94,500	3,700	4,400	19,000	27,100	14,800	8,700	16,800
1988	96,000	3,900	4,400	18,300	27,800	15,100	8,600	17,900
			Changes in Deaths					
1978 to 1988	**−9%**	**−18%**	**−28%**	**−31%**	**+11%**	**−20%**	**−5%**	**+18%**
1987 to 1988	**+2%**	**+ 5%**	**0%**	**− 4%**	**+ 3%**	**+ 2%**	**−1%**	**+ 7%**

		Index		**DEATH RATES[c]**				
1903	87.2	98.7	98.7	46.8	65.0	87.4	111.7	299.8
1904	86.6	103.2	99.1	50.9	64.9	84.6	108.1	290.0
1905	84.2	98.2	98.6	47.0	64.1	81.4	106.2	282.5
1906	93.2	114.5	99.1	46.5	77.1	97.3	111.7	306.0
1907	93.6	114.4	102.7	45.5	78.0	98.8	117.8	274.2
1908	81.2	100.0	97.5	41.2	64.4	79.5	102.2	256.7
1909	80.1	97.0	4.2	39.6	59.9	79.6	101.0	268.2
1910	84.4	103.1	92.8	39.1	65.3	87.3	104.0	276.0
1911	84.7	103.6	101.9	39.3	62.1	81.4	108.7	292.1
1912	82.5	100.0	97.1	40.5	62.3	79.2	103.2	275.8
1913	85.5	103.4	88.4	37.4	65.2	85.6	112.5	281.7
1914	78.6	95.1	94.3	38.9	58.5	73.2	94.6	268.1
1915	76.7	91.1	90.8	39.7	57.3	69.0	92.4	268.8
1916	84.1	100.6	101.4	43.3	40.8	82.5	112.1	297.6
1917	88.2	105.4	108.4	45.3	62.1	79.8	113.8	301.2
1918	82.1	100.1	91.0	46.5	58.7	72.2	106.3	294.2
1919	71.9	87.2	87.2	45.9	55.3	60.1	81.8	262.0
1920	71.2	86.3	87.4	44.9	55.5	56.9	85.6	289.5
1921	68.4	82.5	80.8	42.4	51.4	55.5	79.4	259.8
1922	69.4	84.7	80.6	41.5	51.4	57.1	81.4	265.1
1923	75.7	92.2	82.0	42.4	55.6	64.5	92.6	282.8
1924	75.6	91.1	82.9	42.4	58.6	61.7	90.2	283.5
1925	78.4	94.6	78.6	42.3	59.7	64.7	97.8	293.9
1926	78.7	95.1	77.9	41.4	59.9	65.4	98.2	298.7
1927	78.4	94.8	75.9	41.0	60.2	65.2	98.0	295.4
1928	79.3	91.4	74.4	40.4	59.9	65.6	99.9	306.2
1929	80.8	98.1	73.3	40.0	63.1	67.7	102.1	308.9
1930	80.5	97.9	71.8	36.9	62.3	67.0	102.9	317.9
1931	78.5	95.1	69.9	35.2	59.7	63.0	102.1	313.3
1932	71.3	86.1	65.1	32.8	52.7	55.6	89.3	296.9
1933	72.4	86.9	65.5	33.4	53.6	56.3	90.8	295.3
1934	79.9	95.4	68.1	33.9	57.8	61.8	103.3	328.5
1935	78.4	93.0	68.5	32.2	56.9	61.6	98.0	319.8
1936	85.9	101.5	74.4	32.9	58.8	65.3	108.6	367.4
1937	81.7	95.5	69.6	32.7	60.9	62.1	99.3	333.4
1938	72.3	84.0	65.3	28.5	51.3	52.5	85.4	308.9
1939	70.8	81.4	62.9	28.2	50.7	51.2	81.0	300.0
1940	73.4	84.1	64.8	28.8	53.5	53.2	83.4	305.7

See source and footnotes on page 18.

Accidental Deaths and Death Rates by Age, 1903-1988, Cont.

Year	ALL AGES		Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
1941	76.3	86.7	65.0	29.7	60.9	57.2	84.8	297.4	
1942	71.6	81.0	63.9	27.9	59.8	52.4	77.1	275.5	
1943	73.8	82.9	66.9	29.0	69.7	50.3	73.6	287.8	
1944	71.7	80.2	63.2	29.1	72.9	48.9	68.9	268.6	
1945	72.4	80.0	59.8	29.5	64.5	50.5	71.6	277.6	
1946	70.0	77.8	60.2	28.1	61.7	48.8	70.9	267.9	
1947	69.4	76.9	57.4	25.8	59.6	49.0	70.6	270.7	
1948 (5th Revn.)[b]	67.1	73.9	56.3	24.6	56.8	46.2	66.8	267.4	
1948 (6th Revn.)[b]	63.7	70.4	56.0	24.5	56.8	46.2	65.1	122.4	464.3
1949	60.6	66.7	54.4	23.0	52.2	43.5	60.6	120.4	450.7
1950	60.3	66.6	51.4	22.6	55.0	45.6	60.5	115.8	414.7
1951	62.5	69.0	50.8	23.6	57.7	49.0	62.7	117.1	413.6
1952	61.8	68.4	51.5	22.5	60.9	47.7	62.7	111.1	399.8
1953	60.1	66.6	49.5	22.1	61.4	46.4	60.5	106.7	383.6
1954	55.9	61.9	46.7	20.5	56.4	43.0	55.9	100.7	354.4
1955	56.9	63.2	43.9	20.7	60.1	44.7	57.7	100.8	350.2
1956	56.6	63.3	43.3	20.2	63.3	44.7	56.7	100.6	335.6
1957	55.9	62.2	43.5	19.9	59.5	44.6	56.6	97.5	333.3
1958	52.3	58.1	44.5	19.6	56.2	42.0	51.7	89.3	292.6
1959	52.2	58.1	43.6	18.9	56.5	42.1	53.2	87.7	284.7
1960	52.1	58.0	44.0	19.1	55.6	42.0	53.6	87.6	281.4
1961	50.4	56.1	42.0	18.1	54.0	41.2	52.1	83.8	267.9
1962	52.3	58.1	42.6	18.0	55.0	42.7	54.6	88.5	277.7
1963	53.4	59.5	42.8	18.2	57.2	44.0	56.3	87.9	277.0
1964	54.9	61.4	43.1	19.1	59.9	47.3	57.6	88.9	263.9
1965	55.8	62.3	43.4	18.7	61.6	47.7	58.8	88.5	268.7
1966	58.1	64.8	44.4	19.9	66.9	49.6	60.7	89.8	267.4
1967	57.3	64.0	42.2	19.4	66.9	49.7	59.2	88.5	257.4
1968	57.6	64.3	40.6	20.5	69.2	50.1	58.5	90.2	244.0
1969	57.8	64.6	40.2	20.0	71.8	51.2	58.4	86.6	232.0
1970	56.2	62.5	38.4	20.1	68.0	49.8	57.6	85.2	219.6
1971	54.8	60.7	37.7	20.1	66.1	48.4	54.7	82.7	213.2
1972	55.2	60.7	35.9	20.6	67.6	47.5	55.2	80.8	214.2
1973	54.8	60.1	35.8	20.6	68.2	48.0	53.3	77.3	206.3
1974	49.0	53.5	32.4	18.2	60.9	42.7	46.7	68.7	186.7
1975	47.8	52.0	30.7	17.8	59.5	42.3	44.9	66.2	175.5
1976	46.3	50.1	30.0	16.7	58.9	40.3	43.2	62.0	168.4
1977	47.0	50.6	28.7	17.0	61.3	40.9	43.4	61.5	164.0
1978	47.5	51.2	30.3	16.9	63.1	42.3	42.4	60.5	159.7
1979	46.9	50.4	27.6	16.1	62.6	42.7	41.3	58.8	154.8
1980	46.5	49.7	27.2	15.0	61.7	42.2	40.8	57.5	158.7
1981	43.9	46.8	24.4	14.1	56.0	41.2	38.9	54.3	147.5
1982	40.6	43.1	23.7	13.2	51.4	37.2	35.7	50.8	140.2
1983	39.5	41.7	22.7	12.7	48.5	35.9	34.6	50.5	143.1
1984	39.3	41.4	20.5	12.4	49.4	35.5	34.1	50.3	143.0
1985	39.1	41.2	20.8	12.5	48.4	35.2	33.9	50.5	143.3
1986	39.5	41.6	21.2	12.5	51.2	35.9	32.7	49.0	141.9
1987	38.8	40.9	20.3	12.9	49.7	34.9	32.7	49.2	138.1
1988	39.1	41.0	21.3	12.7	48.9	35.3	32.9	48.0	140.4
Changes in Rates									
1978 to 1988	**−18%**	**−20%**	**−30%**	**−25%**	**−23%**	**−17%**	**−22%**	**−21%**	**−12%**
1987 to 1988	**+ 1%**	**([d])**	**+ 5%**	**− 2%**	**− 2%**	**+ 1%**	**+ 1%**	**− 2%**	**+ 2%**
1988 Population (millions)									
Total	**245.81**		**18.34**	**34.62**	**37.40**	**78.84**	**45.95**	**17.90**	**12.75**
Male	119.70		9.39	17.73	18.92	39.19	22.02	7.94	4.50
Female	126.11		8.95	16.89	18.48	39.65	23.93	9.96	8.25

Source: 1903 to 1932 based on National Center for Health Statistics data for registration states; 1933-1948 (5th Revn.), 1949-1963, 1965-1986 are NCHS totals. All other figures are National Safety Council estimates. 1988 preliminary, 1987 revised. See page 31 for comparability.

[a] Includes "age unknown". In 1986 these deaths numbered 165.

[b] In 1948, a revision was made in the International List of Causes of Death. The first figures for 1948 are comparable with those for earlier years, the second with those for later years.

[c] Rates are deaths per 100,000 resident population in each age group. The ALL AGES crude rates are based on U.S. Census Bureau figures. The index numbers (1912 = 100.0) are based on rates standardized for age (base 1940) to remove the influence of changes in age distribution between 1903 and 1988.

[d] Increased less than 0.5 percent.

Principal Types of Accidental Deaths, 1903-1988

Year	Motor-Vehicle	Falls	Drowning[a]	Fires, Burns[b]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas
DEATHS								
1903	(c)	(c)	9,200	(c)	(c)	2,500	(c)	(c)
1904	(c)	(c)	9,300	(c)	(c)	2,800	(c)	(c)
1905	(c)	(c)	9,300	(c)	(c)	2,000	(c)	(c)
1906	400	(c)	9,400	(c)	(c)	2,100	(c)	(c)
1907	700	(c)	9,000	(c)	(c)	1,700	(c)	(c)
1908	800	(c)	9,300	(c)	(c)	1,900	(c)	(c)
1909	1,300	(c)	8,500	(c)	(c)	1,600	(c)	(c)
1910	1,900	(c)	8,700	(c)	(c)	1,900	(c)	(c)
1911	2,300	(c)	9,000	(c)	(c)	2,100	(c)	(c)
1912	3,100	(c)	8,600	(c)	(c)	2,100	(c)	(c)
1913	4,200	15,100	10,300	8,900	(c)	2,400	3,200	(c)
1914	4,700	15,000	8,700	9,100	(c)	2,300	3,300	(c)
1915	6,600	15,000	8,600	8,400	(c)	2,100	2,800	(c)
1916	8,200	15,200	8,900	9,500	(c)	2,200	2,900	(c)
1917	10,200	15,200	7,600	10,800	(c)	2,300	2,800	(c)
1918	10,700	13,200	7,000	10,200	(c)	2,500	2,700	(c)
1919	11,200	11,900	9,100	9,100	(c)	2,800	3,100	(c)
1920	12,500	12,600	6,100	9,300	(c)	2,700	3,300	(c)
1921	13,900	12,300	7,800	7,500	(c)	2,800	2,900	(c)
1922	15,300	13,200	7,000	8,300	(c)	2,900	2,800	(c)
1923	18,400	14,100	6,800	9,100	(c)	2,900	2,800	2,700
1924	19,400	14,700	7,400	7,400	(c)	2,900	2,700	2,900
1925	21,900	15,500	7,300	8,600	(c)	2,800	2,700	2,800
1926	23,400	16,300	7,500	8,800	(c)	2,800	2,600	3,200
1927	25,800	16,500	8,100	8,200	(c)	3,000	2,600	2,700
1928	28,000	17,000	8,600	8,400	(c)	2,900	2,800	2,800
1929	31,200	17,700	7,600	8,200	(c)	3,200	2,600	2,800
1930	32,900	18,100	7,500	8,100	(c)	3,200	2,600	2,500
1931	33,700	18,100	7,600	7,100	(c)	3,100	2,600	2,100
1932	29,500	18,600	7,500	7,100	(c)	3,000	2,200	2,100
1933	31,363	18,962	7,158	6,781	(c)	3,014	2,135	1,633
1934	36,101	20,725	7,077	7,456	(c)	3,033	2,148	1,643
1935	36,369	21,378	6,744	7,253	(c)	2,799	2,163	1,654
1936	38,089	23,562	6,659	7,939	(c)	2,817	2,177	1,665
1937	39,643	22,544	7,085	7,214	(c)	2,576	2,190	1,675
1938	32,582	23,239	6,881	6,491	(c)	2,726	2,077	1,428
1939	32,386	23,427	6,413	6,675	(c)	2,618	1,963	1,440
1940	34,501	23,356	6,202	7,521	(c)	2,375	1,847	1,583
1941	39,969	22,764	6,389	6,922	(c)	2,396	1,731	1,464
1942	28,309	22,632	6,696	7,901	(c)	2,678	1,607	1,741
1943	23,823	24,701	7,115	8,726	921	2,282	1,745	2,014
1944	24,282	22,989	6,511	8,372	896	2,392	1,993	1,860
1945	28,076	23,847	6,624	7,949	897	2,385	1,987	2,120
1946	33,411	23,109	6,442	7,843	1,076	2,801	1,961	1,821
1947	32,697	24,529	6,885	8,033	1,206	2,439	1,865	1,865
1948 (5th Revn.)[d]	32,259	24,836	6,428	7,743	1,315	2,191	1,753	2,045
1948 (6th Revn.)[d]	32,259	22,000	6,500	6,800	1,299	2,330	1,600	2,029
1949	31,701	22,308	6,684	5,982	1,341	2,326	1,634	1,617
1950	34,763	20,783	6,131	6,405	1,350	2,174	1,584	1,769
1951	36,996	21,376	6,489	6,788	1,456	2,247	1,497	1,627
1952	37,794	20,945	6,601	6,922	1,434	2,210	1,440	1,397
1953	37,955	20,631	6,770	6,579	1,603	2,277	1,391	1,223
1954	35,586	19,771	6,334	6,083	1,627	2,271	1,339	1,223
1955	38,426	20,192	6,344	6,352	1,608	2,120	1,431	1,163
1956	39,628	20,282	6,263	6,405	1,760	2,202	1,422	1,213
1957	38,702	20,545	6,613	6,269	2,043	2,369	1,390	1,143
1958	36,981	18,248	6,582[e]	7,291[e]	2,191[e]	2,172	1,429	1,187
1959	37,910	18,774	6,434	6,898	2,189	2,258	1,661	1,141
1960	38,137	19,023	6,529	7,645	2,397	2,334	1,679	1,253
1961	38,091	18,691	6,525	7,102	2,499	2,204	1,804	1,192
1962	40,804	19,589	6,439	7,534	1,813	2,092	1,833	1,376
1963	43,564	19,335	6,347	8,172	1,949	2,263	2,061	1,489
1964	47,700	18,941	6,709	7,379	1,865	2,275	2,100	1,360
1965	49,163	19,984	6,799	7,347	1,836	2,344	2,110	1,526
1966	53,041	20,066	7,084	8,084	1,831	2,558	2,283	1,648

See source and footnotes on page 21

Principal Types of Accidental Deaths, 1903-1988, Cont.

Year	Motor-Vehicle	Falls	Drowning[d]	Fires, Burns[b]	Ingest. of Food Object	Fire-arms	Poison (solid, liquid)	Poison by Gas
1967	52,924	20,120	7,076	7,423	1,980	2,896	2,506	1,574
1968	54,862	18,651	7,372[c]	7,335[c]	3,100[c]	2,394[c]	2,583	1,526
1969	55,791	17,827	7,699	7,163	3,712	2,309	2,967	1,549
1970	54,633	16,926	7,860	6,718	2,753	2,406	3,679	1,620
1971	54,381	16,755	7,396	6,776	2,877	2,360	3,710	1,646
1972	56,278	16,744	7,586	6,714	2,830	2,442	3,728	1,690
1973	55,511	16,506	8,725	6,503	3,013	2,618	3,683	1,652
1974	46,402	16,339	7,876	6,236	2,991	2,513	4,016	1,518
1975	45,853	14,896	8,000	6,071	3,106	2,380	4,694	1,577
1976	47,038	14,136	6,827	6,338	3,033	2,059	4,161	1,569
1977	49,510	13,773	7,126	6,357	3,037	1,982	3,374	1,596
1978	52,411	13,690	7,026	6,163	3,063	1,806	3,035	1,737
1979	53,524	13,216	6,872	5,991	3,243	2,004	3,165	1,472
1980	53,172	13,294	7,257	5,822	3,249	1,955	3,089	1,242
1981	51,385	12,628	6,277	5,697	3,331	1,871	3,243	1,280
1982	45,779	12,077	6,351	5,210	3,254	1,756	3,474	1,259
1983	44,452	12,024	6,353	5,028	3,387	1,695	3,382	1,251
1984	46,263	11,937	5,388	5,010	3,541	1,668	3,808	1,103
1985	45,901	12,001	5,316	4,938	3,551	1,649	4,091	1,079
1986	47,865	11,444	5,700	4,835	3,692	1,452	4,731	1,009
1987	48,400	11,400	5,400	5,000	3,400	1,300	4,600	1,000
1988	49,000	12,000	5,000	5,000	3,600	1,400	5,300	1,000
Changes in Deaths								
1978 to 1988	**−7%**	**−12%**	**−29%**	**−19%**	**+18%**	**−22%**	**+75%**	**−42%**
1987 to 1988	**+1%**	**+5%**	**−7%**	**0%**	**+6%**	**+8%**	**+15%**	**0%**
DEATH RATES per 100,000 Population								
1903	(e)	(e)	11.4	(e)	(e)	3.1	(e)	(e)
1904	(e)	(e)	11.3	(e)	(e)	3.4	(e)	(e)
1905	(e)	(e)	11.1	(e)	(e)	2.4	(e)	(e)
1906	0.5	(e)	11.0	(e)	(e)	2.4	(e)	(e)
1907	0.8	(e)	10.4	(e)	(e)	2.0	(e)	(e)
1908	0.9	(e)	10.5	(e)	(e)	2.1	(e)	(e)
1909	1.4	(e)	9.4	(e)	(e)	1.8	(e)	(e)
1910	2.0	(e)	9.4	(e)	(e)	2.1	(e)	(e)
1911	2.5	(e)	9.6	(e)	(e)	2.2	(e)	(e)
1912	3.3	(e)	9.0	(e)	(e)	2.2	(e)	(e)
1913	4.4	15.5	10.6	9.1	(e)	2.5	3.3	(e)
1914	4.8	15.1	8.8	9.1	(e)	2.3	3.3	(e)
1915	6.6	14.9	8.6	8.4	(e)	2.1	2.8	(e)
1916	8.1	14.9	8.7	9.3	(e)	2.2	2.8	(e)
1917	10.0	14.7	7.4	10.5	(e)	2.2	2.7	(e)
1918	10.3	12.8	6.8	9.9	(e)	2.4	2.6	(e)
1919	10.7	11.4	6.9	8.7	(e)	2.7	3.0	(e)
1920	11.7	11.8	5.7	8.7	(e)	2.5	3.1	(e)
1921	12.9	11.3	7.2	6.9	(e)	2.6	2.7	(e)
1922	13.9	12.0	6.4	7.5	(e)	2.6	2.5	(e)
1923	16.5	12.6	6.1	8.1	(e)	2.6	2.5	2.4
1924	17.1	12.9	6.5	8.4	(e)	2.5	2.4	2.5
1925	19.1	13.4	6.3	7.4	(e)	2.4	2.3	2.4
1926	20.1	13.9	6.4	7.5	(e)	2.4	2.2	2.7
1927	21.8	13.9	6.8	6.9	(e)	2.5	2.2	2.3
1928	23.4	14.1	7.1	7.0	(e)	2.4	2.3	2.3
1929	25.7	14.5	6.2	6.7	(e)	2.6	2.1	2.3
1930	26.7	14.7	6.1	6.6	(e)	2.6	2.1	2.0
1931	27.2	14.6	6.1	5.7	(e)	2.5	2.1	1.7
1932	23.6	14.9	6.0	5.7	(e)	2.4	1.8	1.7
1933	25.0	15.1	5.7	5.4	(e)	2.4	1.7	1.3
1934	28.6	16.4	5.6	5.9	(e)	2.4	1.7	1.3
1935	28.6	16.8	5.3	5.7	(e)	2.2	1.7	1.3
1936	29.7	18.4	5.2	6.2	(e)	2.2	1.7	1.3
1937	30.8	17.5	5.5	5.6	(e)	2.0	1.7	1.3
1938	25.1	17.9	5.3	5.0	(e)	2.1	1.6	1.1
1939	24.7	17.9	4.9	5.1	(e)	2.0	1.5	1.1
1940	26.1	17.7	4.7	5.7	(e)	1.8	1.4	1.2

See source and footnotes on page 21

Principal Types of Accidental Deaths, 1903-1988, Cont.

Year	Motor-Vehicle	Falls	Drowning[a]	Fires, Burns[b]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas
1941	30.0	17.1	4.8	5.2	(c)	1.8	1.3	1.1
1942	21.1	16.9	5.0	5.9	(c)	2.0	1.2	1.3
1943	17.8	18.4	5.3	6.5	0.7	1.7	1.3	1.5
1944	18.3	17.3	4.9	6.3	0.7	1.8	1.5	1.4
1945	21.2	18.0	5.0	6.0	0.7	1.8	1.5	1.6
1946	23.9	16.5	4.6	5.6	0.8	2.0	1.4	1.3
1947	22.8	17.1	4.8	5.6	0.8	1.7	1.3	1.3
1948 (5th Revn.)[d]	22.1	17.0	4.4	5.3	0.9	1.5	1.2	1.4
1948 (6th Revn.)[d]	22.1	15.1	4.5	4.7	0.9	1.6	1.1	1.4
1949	21.3	15.0	4.5	4.0	0.9	1.6	1.1	1.1
1950	23.0	13.7	4.1	4.2	0.9	1.4	1.1	1.2
1951	24.1	13.9	4.2	4.4	1.0	1.5	1.0	1.1
1952	24.3	13.5	4.2	4.5	0.9	1.4	0.9	0.9
1953	24.0	13.0	4.3	4.2	1.0	1.4	0.9	0.8
1954	22.1	12.3	3.9	3.8	1.0	1.4	0.8	0.8
1955	23.4	12.3	3.9	3.9	1.0	1.3	0.9	0.7
1956	23.7	12.1	3.7	3.8	1.1	1.3	0.8	0.7
1957	22.7	12.1	3.9	3.7	1.2	1.4	0.8	0.7
1958	21.3	10.5	3.8[e]	4.2[e]	1.3[e]	1.3	0.8	0.7
1959	21.5	10.6	3.7	3.9	1.2	1.3	0.9	0.7
1960	21.2	10.6	3.6	4.3	1.3	1.3	0.9	0.7
1961	20.8	10.2	3.6	3.9	1.4	1.2	1.0	0.7
1962	22.0	10.5	3.5	4.1	1.0	1.1	1.0	0.7
1963	23.1	10.3	3.4	4.3	1.0	1.2	1.1	0.8
1964	25.0	9.9	3.5	3.9	1.0	1.2	1.1	0.7
1965	25.4	10.3	3.5	3.8	1.0	1.2	1.1	0.8
1966	27.1	10.3	3.6	4.8	0.9	1.3	1.2	0.8
1967	26.8	10.2	3.6	3.8	1.0	1.5	1.3	0.8
1968	27.5	9.4	3.7[e]	3.7[e]	1.6[e]	1.2[e]	1.3	0.8
1969	27.7	8.9	3.8	3.6	1.8	1.2	1.5	0.8
1970	26.8	8.3	3.9	3.3	1.4	1.2	1.8	0.8
1971	26.3	8.1	3.6	3.3	1.4	1.1	1.8	0.8
1972	26.9	8.0	3.6	3.2	1.4	1.2	1.8	0.8
1973	26.3	7.8	4.1	3.1	1.4	1.2	1.7	0.8
1974	21.8	7.7	3.7	2.9	1.4	1.2	1.8	0.7
1975	21.3	6.9	3.7	2.8	1.4	1.1	2.2	0.7
1976	21.6	6.5	3.1	2.9	1.4	0.9	1.9	0.7
1977	22.5	6.3	3.2	2.9	1.4	0.9	1.5	0.7
1978	23.6	6.2	3.2	2.8	1.4	0.8	1.4	0.8
1979	23.8	5.9	3.1	2.7	1.4	0.9	1.4	0.7
1980	23.4	5.9	3.2	2.6	1.4	0.9	1.4	0.5
1981	22.4	5.5	2.7	2.5	1.5	0.8	1.4	0.6
1982	19.7	5.2	2.7	2.2	1.4	0.8	1.4	0.5
1983	19.0	5.1	2.7	2.1	1.4	0.7	1.4	0.5
1984	19.6	5.0	2.3	2.1	1.5	0.7	1.6	0.5
1985	19.2	5.0	2.2	2.1	1.5	0.7	1.7	0.5
1986	19.9	4.7	2.4	2.0	1.5	0.6	2.0	0.4
1987	19.9	4.7	2.2	2.1	1.4	0.5	1.9	0.4
1988	19.9	4.9	2.0	2.0	1.5	0.6	2.2	0.4
Changes in Rates								
1978 to 1988	**−16%**	**−21%**	**−38%**	**−29%**	**+7%**	**−25%**	**+57%**	**−50%**
1987 to 1988	**0%**	**+4%**	**−9%**	**−5%**	**+7%**	**+20%**	**+16%**	**0%**

Source: National Center for Health Statistics and National Safety Council. See page 31 for comparability.

[a] Includes drowning in water transport accidents.

[b] Includes burns by fire, and deaths resulting from conflagration regardless of nature of injury.

[c] Comparable data not available.

[d] In 1948, a revision was made in the International List of Causes of Death. The first figures for 1948 are comparable with those for earlier years, the second with those for later years.

[e] Data are not comparable to previous years shown due to classification changes in 1958 and 1968.

Leading causes of death by age, 1986

Heart disease, cancer, stroke and accidents are the leading causes of death in the United States today. This graph depicts the number of deaths attributed to these causes by single year ages in 1986.

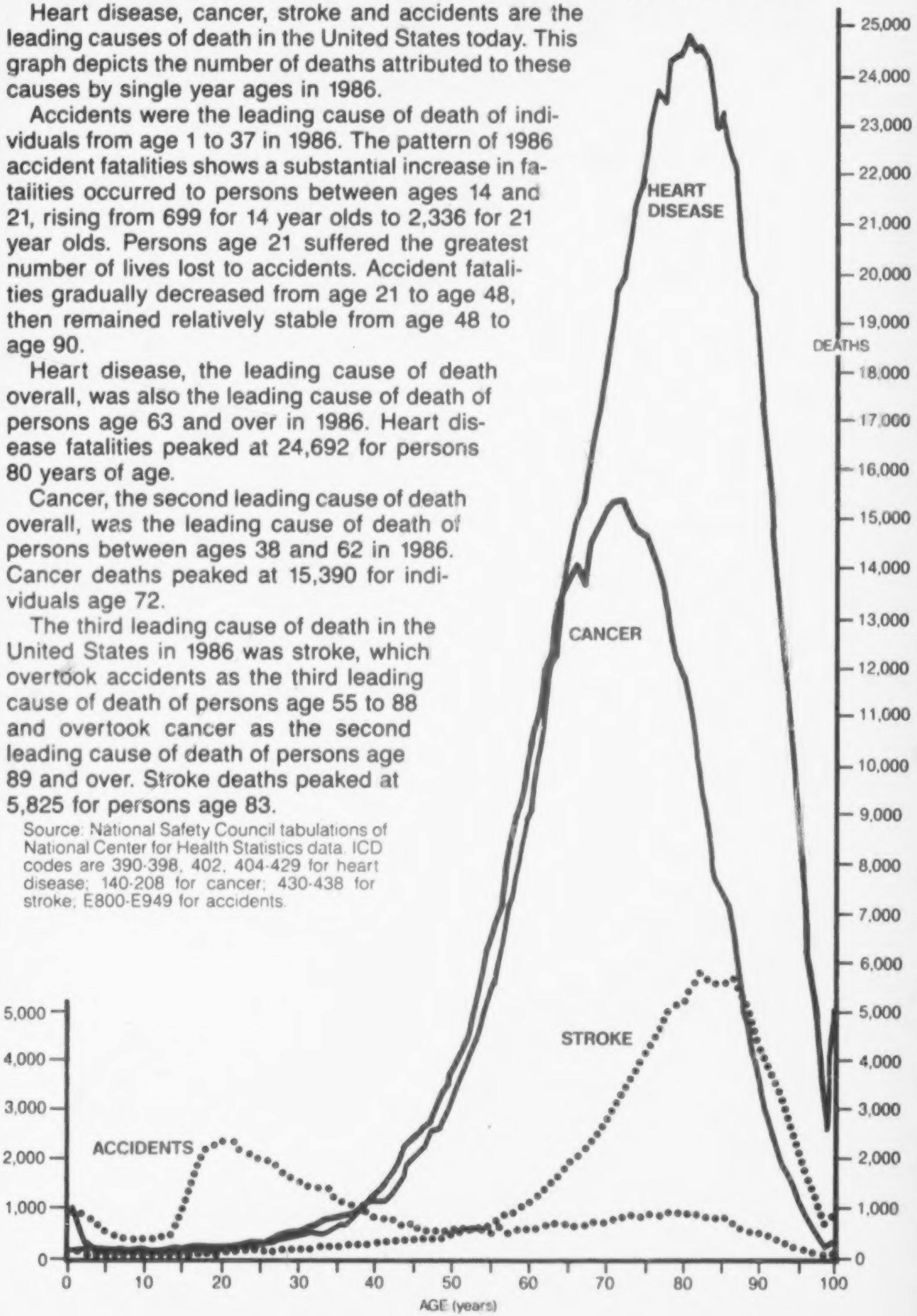
Accidents were the leading cause of death of individuals from age 1 to 37 in 1986. The pattern of 1986 accident fatalities shows a substantial increase in fatalities occurred to persons between ages 14 and 21, rising from 699 for 14 year olds to 2,336 for 21 year olds. Persons age 21 suffered the greatest number of lives lost to accidents. Accident fatalities gradually decreased from age 21 to age 48, then remained relatively stable from age 48 to age 90.

Heart disease, the leading cause of death overall, was also the leading cause of death of persons age 63 and over in 1986. Heart disease fatalities peaked at 24,692 for persons 80 years of age.

Cancer, the second leading cause of death overall, was the leading cause of death of persons between ages 38 and 62 in 1986. Cancer deaths peaked at 15,390 for individuals age 72.

The third leading cause of death in the United States in 1986 was stroke, which overtook accidents as the third leading cause of death of persons age 55 to 88 and overtook cancer as the second leading cause of death of persons age 89 and over. Stroke deaths peaked at 5,825 for persons age 83.

Source: National Safety Council tabulations of National Center for Health Statistics data. ICD codes are 390-398, 402, 404-429 for heart disease; 140-208 for cancer; 430-438 for stroke; E800-E949 for accidents.



Leading causes of accidental death by age

Motor-vehicle accidents, falls, drownings, and fires and burns were the leading causes of accidental death in the United States in 1986. This graph depicts the number of deaths attributed to these causes by single year ages in that year.

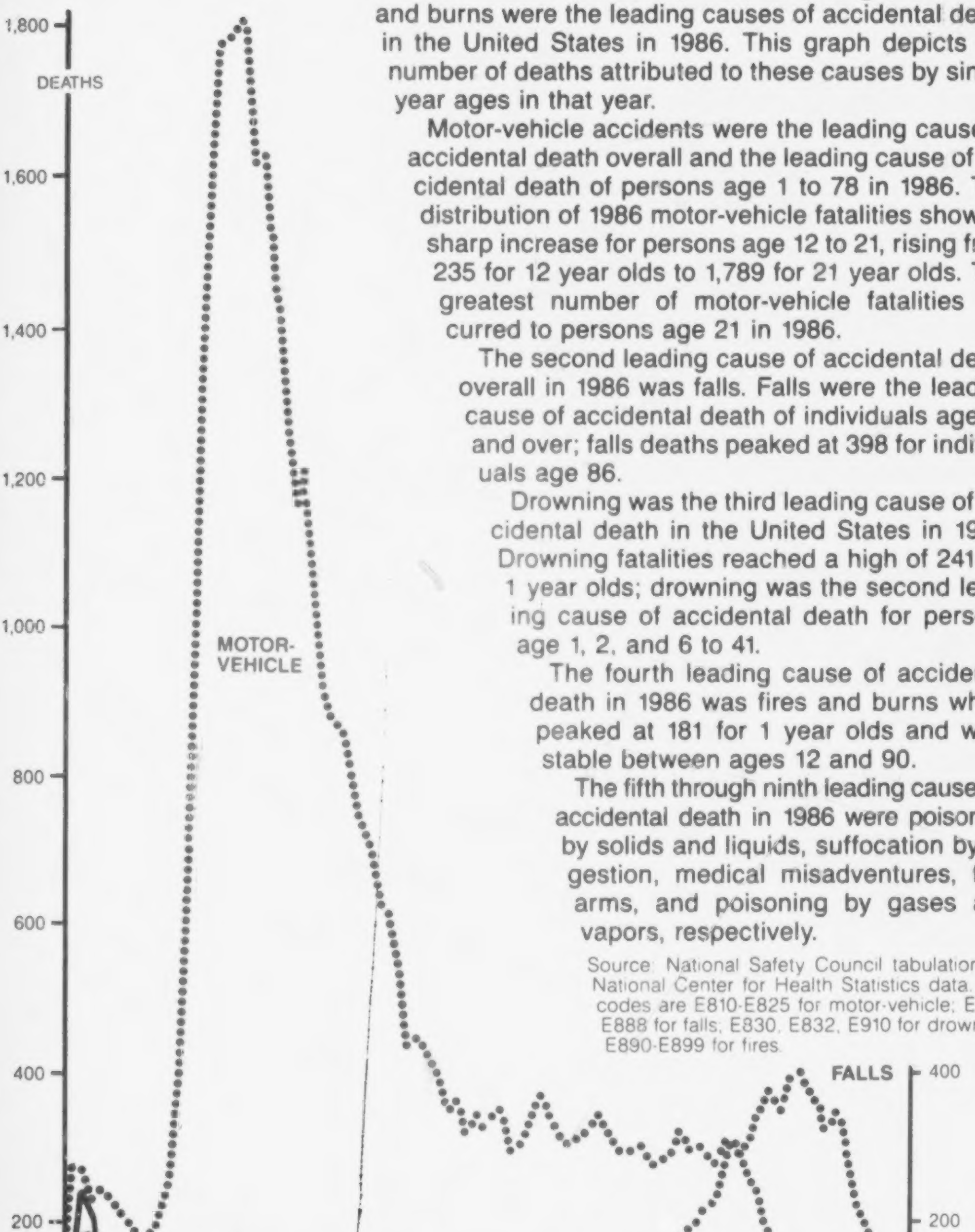
Motor-vehicle accidents were the leading cause of accidental death overall and the leading cause of accidental death of persons age 1 to 78 in 1986. The distribution of 1986 motor-vehicle fatalities shows a sharp increase for persons age 12 to 21, rising from 235 for 12 year olds to 1,789 for 21 year olds. The greatest number of motor-vehicle fatalities occurred to persons age 21 in 1986.

The second leading cause of accidental death overall in 1986 was falls. Falls were the leading cause of accidental death of individuals age 79 and over; falls deaths peaked at 398 for individuals age 86.

Drowning was the third leading cause of accidental death in the United States in 1986. Drowning fatalities reached a high of 241 for 1 year olds; drowning was the second leading cause of accidental death for persons age 1, 2, and 6 to 41.

The fourth leading cause of accidental death in 1986 was fires and burns which peaked at 181 for 1 year olds and were stable between ages 12 and 90.

The fifth through ninth leading causes of accidental death in 1986 were poisoning by solids and liquids, suffocation by ingestion, medical misadventures, firearms, and poisoning by gases and vapors, respectively.



Source: National Safety Council tabulations of National Center for Health Statistics data. ICD codes are E810-E825 for motor-vehicle; E880-E888 for falls; E830, E832, E910 for drowning; E890-E899 for fires.

Children and youths

Deaths. For children and youths aged 1 to 24 years, accidents are the leading cause of death, accounting for almost half of the 56,197 total deaths of these persons in 1986 (the latest detailed data available, see table below). Motor-vehicle accidents were the leading cause of accidental death for this age group, followed by drowning, fires and burns, firearms, poisoning, falls, and mechanical suffocation. Although motor-vehicle deaths are the leading type overall, information not shown below indicates that for those under age 5, drownings are the leading cause of accidental deaths in many parts of the country, including the South, Southwest, and California.[a]

By single year ages, accidental deaths increase markedly during the teen years, from under 1,000 for those age 13 to over 4,100 for those age 19. Motor-vehicle accidents account for most of this rise, although drownings, falls, and poisonings also contribute.

For infants under 1 year of age, accidents are the fifth leading cause of death, following certain conditions originating in the perinatal period, congenital anomalies, sudden infant death syndrome, and heart disease (see page 8). Although accidents account for only about 2 per cent of the deaths for those under age 1, the number of accidental deaths for this age is greater than that for any other age from 2 through 14.

[a] American Academy of Pediatrics. *Injury Control for Children and Youth.* Elk Grove Village, Illinois: Author, 1987.

Total Deaths and Accidental Deaths, Ages 0-24, 1986

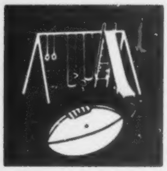
Age	Population (000)	All Deaths	Accidental Deaths	Motor-Vehicle	Drowning	Fires, Burns	Firearms	Poison (solid, liquid)	Falls	Mechanical Suffocation	Other Accident
Under 1 year	3,768	38,891	909	183	94	120	3	16	35	188	71
1 to 24 years	**87,263**	**56,197**	**27,135**	**18,582**	**2,650**	**1,477**	**674**	**542**	**536**	**303**	**1,800**
1 year	3,611	2,899	926	275	241	164	4	25	26	35	72
2 years	3,497	1,916	809	271	202	181	8	10	31	11	54
3 years	3,625	1,463	643	209	144	178	12	3	12	13	48
4 years	3,650	1,202	556	250	73	125	7	5	13	3	51
5 years	3,605	952	473	238	78	85	8	3	7	9	30
6 years	3,555	892	439	236	78	71	8	3	7	3	23
7 years	3,496	797	386	210	75	47	10	0	2	6	28
8 years	3,283	732	360	198	57	49	12	1	2	9	23
9 years	3,355	709	325	187	38	38	19	3	4	4	27
10 years	3,267	711	333	182	42	36	16	2	8	9	30
11 years	3,285	731	338	192	42	35	20	1	6	9	27
12 years	3,202	847	405	235	56	20	26	3	5	19	30
13 years	3,302	989	468	257	71	24	35	3	5	13	48
14 years	3,509	1,428	699	415	112	29	46	7	9	16	55
15 years	3,846	2,013	989	695	103	30	46	11	15	8	69
16 years	3,767	2,860	1,624	1,257	124	33	44	17	22	20	80
17 years	3,675	3,330	1,921	1,523	144	22	56	15	26	7	96
18 years	3,554	3,915	2,194	1,756	158	33	53	35	32	8	94
19 years	3,768	4,106	2,260	1,766	130	34	39	44	55	21	132
20 years	3,837	4,468	2,305	1,774	158	44	42	48	44	16	148
21 years	3,971	4,725	2,336	1,789	133	44	47	67	39	18	167
22 years	4,110	4,689	2,118	1,597	123	51	35	65	53	16	143
23 years	4,183	4,827	2,188	1,618	133	56	45	72	61	21	150
24 years	4,310	4,996	2,040	1,452	135	48	36	99	52	9	175

Source: Based on 1986 National Center for Health Statistics data.

Injuries. Of the 62.1 million injuries suffered in the U.S. in 1987, about 44 per cent of the victims were under 25 years of age, according to information from the National Health Interview Survey (see page 27). An estimated 131,000 emergency-room treated injuries were associated with toys in 1987 according to the Consumer Product Safety Commission (see page 95). Nursery equipment was associated with about 86,000 emergency-room treated injuries. A recent study[a] of children under age 1 treated at one hospital emergency room showed that falls are by far the leading cause of unintentional injury, accounting for almost half the treated cases.

[a] Rivara, F.P., Kamitsuka, M.D., Quan, L. Injuries to children younger than 1 year of age. *Pediatrics, 81* (1), January 1988, 93-97.

Childhood injuries



Playground-related injuries

About 5 per cent of all emergency-room treated injuries to children 1 through 4 years old involve playground equipment, according to a recent Centers for Disease Control analysis of Consumer Product Safety Commission data from 1983 to 1987. For the 5-year period, about 305,000 playground-related cases were estimated for this age group. More than one third of the injuries occurred on home playgrounds, while only about 9 per cent occurred on school playgrounds.

Frequency of injury increased with age, with those 4 years of age having about 46 per cent of the cases. Males were more frequent victims, accounting for about 56 per cent of the total. By season, Spring had the greatest number of injuries (34 per cent), and Summer had the fewest (19 per cent). Climbing apparatus was associated with about 41 per cent of the injuries.

Head and neck injuries were most commonly reported, and these were primarily lacerations. About 5 per cent of those treated in emergency rooms required subsequent hospitalization.

Source: *Morbidity and Mortality Weekly Report*, October 21, 1988, *37* (41), 629-632.

Youth sports injuries

Although sports provide a variety of health benefits to children, many studies have been performed to measure the risk of injury which is also inherent in youth sports activities. A review of several of these studies in a recent issue of *The Physician and Sportsmedicine* found that the overall injury rate for children participating in recreational, community or school sports was between 3 and 11 per cent.

Rates for individual sports have been estimated independently by various researchers. For youth football, an overall rate of 15 per cent was observed, while rates for significant injury (defined as more than 7 days restricted from play) were estimated at 5 per cent. High school football rates were higher, ranging from 25 to 65 per cent overall, and from 15 to 18 per cent for significant injury (see also page 83). For basketball, injury rates ranged from 10 per cent for children on organized school teams to 31 per cent for high school boys basketball and 25 per cent for high school girls basketball.

Young adolescent wrestlers had an injury rate of 3.8 per cent, while high school wrestling rates ranged from 23 per cent to 78 per cent with a significant injury rate of 15 per cent. One study showed wrestling second only to football as a cause of knee injuries requiring surgery.

Serious face, head, and neck injuries are a concern in youth hockey, for which one study of high school players estimated that 54 per cent sustained a face injury at some point in their career (usually a laceration or nose fracture). Overall injury rates for high school hockey players were about 20 per cent, while a 2.4 per cent injury rate was observed for those aged 5 to 14.

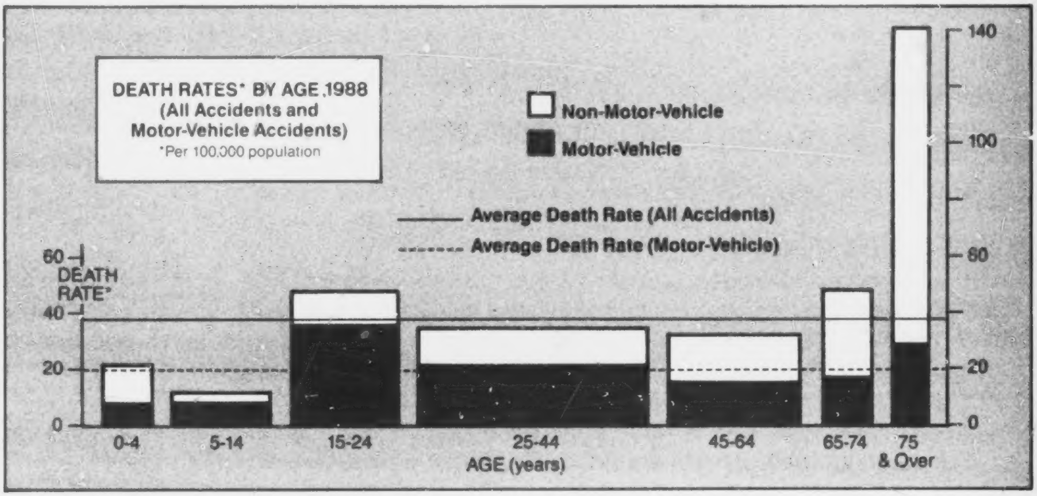
Gymnastics injuries occurred at a rate of 12 to 22 per cent for children and adolescents in gymnastics clubs. For high school participants, gymnastics appeared to rank fourth in sports injury frequency after football, wrestling, and softball. For high school baseball players, 14 to 18 per cent required at least 1 visit to a trainer as a result of injury, while for high school soccer players a 6 to 9 per cent injury rate was determined. Younger players in soccer had injury rates of about 5 per cent or less, with significant injuries found to be uncommon.

Source: Goldberg, B. Injury patterns in youth sports. *The Physician and Sportsmedicine*, March 1989, *17* (3), 175-186.

Accidental death rates by age

Accidental death rates per 100,000 population are published each year in *Accident Facts* for the entire population and for standard age groups. The amount that the rate for a particular age group contributes to the overall rate is determined by the magnitude of the group rate and the proportion of the population represented by the group. For example, although the death rate for those aged 75 and over is almost 3 times higher than any other age group, this group also represents the smallest proportion of the population.

The chart below illustrates for each age group, the two factors which determine its contribution to the overall rate. Height of the bars represents the magnitude of the death rate for the age group. Width of the bar represents its relative proportion of the total population. The motor-vehicle portion of the rate is shown in solid color.



Years of Potential Life Lost

While accidents are the fourth leading cause of death in the U.S., accident victims tend to be much younger than those for the three leading causes of death. Ranked by years of potential life lost before age 65, unintentional injuries (accidents) are the leading cause of death, accounting for about 2.3 million such years lost in each 12 month period. The next leading causes of years of potential life lost before age 65, in order, are cancer, heart disease, and suicide/homicide.

Including only the years before age 65 is the standard method used by those in the public health field to calculate years of potential life lost. However, an alternative method is to include the total life expectancy remaining at time of death. Using this alternative method, the leading causes of years of potential life lost are heart disease, cancer, unintentional injuries, suicide/homicide, and cerebrovascular disease.

By type of accidental death, rankings based on years of potential life lost likewise tend to emphasize those types dominated by younger age groups. Motor-vehicle accidents are the leading cause of accidental deaths and also the leading cause of years of potential life lost before age 65 due to accidents. Falls, however, are the second leading cause of accidental death but 5th leading cause of years of potential life lost due to accidents. Other accident types and their rankings in terms of years of potential life lost before age 65 due to accidents are as follows: drownings (2nd), fires (3rd), poisonings (4th), firearms (6th), suffocation by ingestion (7th).

Source: *Morbidity and Mortality Weekly Report* (*35* (suppl. no. 2S), December 19, 1986, 3S; *36* (49), December 18, 1987, 814; *38* (2), January 20, 1989, 27)

Accidental Deaths by Age, Sex, and Type, 1986[a]

Age and Sex	ALL TYPES[b]	Motor-Vehicle	Falls	Drowning[c]	Fires, Burns[d]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas	% Male All Types
All Ages	**95,277**	**47,865**	**11,444**	**5,700**	**4,835**	**3,692**	**1,452**	**4,731**	**1,009**	**69%**
Under 5	3,843	1,188	117	754	768	280	34	59	34	60%
5 to 14	4,226	2,350	55	649	434	49	200	26	28	69%
15 to 24	19,975	15,227	399	1,341	395	74	443	473	200	77%
25 to 44	27,201	15,844	1,035	1,665	1,003	320	471	2,885	343	79%
45 to 64	14,733	6,799	1,519	716	841	600	196	716	207	72%
65 to 74	8,499	3,096	1,554	270	562	643	61	243	92	60%
75 & over	16,800	3,361	6,765	305	832	1,726	47	329	105	47%
Male	**65,570**	**34,088**	**6,043**	**4,704**	**2,984**	**2,003**	**1,254**	**3,341**	**764**	
Female	**29,707**	**13,777**	**5,401**	**996**	**1,851**	**1,689**	**198**	**1,390**	**245**	
Per cent male	69%	71%	53%	83%	62%	54%	86%	71%	76%	

See table below for source and footnotes.

Accidental Deaths by Month and Type, 1986 and 1988

Month	1988 Totals	1986[a] Details by Type								
		ALL TYPES[b]	Motor-Vehicle	Falls	Drowning[c, e]	Fires, Burns[d]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas
All Months	**96,000**	**95,277**	**47,865**	**11,444**	**5,700**	**4,835**	**3,692**	**1,452**	**4,731**	**1,009**
January	8,000	7,386	3,274	1,026	180	702	337	130	395	142
February	6,700	6,487	2,814	900	230	512	324	115	397	99
March	7,450	7,568	3,559	1,042	340	521	327	117	408	101
April	7,250	7,261	3,607	863	400	379	325	104	410	64
May	8,000	8,400	4,331	957	620	374	286	120	470	40
June	8,550	8,750	4,460	937	960	241	274	100	456	52
July	9,100	9,489	4,704	979	1,130	264	267	114	434	47
August	8,900	9,114	4,895	950	770	250	306	122	393	43
September	7,850	7,684	4,197	941	400	252	273	110	308	56
October	8,300	7,901	4,244	997	260	339	309	103	354	86
November	7,800	7,558	3,920	893	230	421	328	178	339	126
December	8,100	7,679	3,860	959	180	580	336	139	367	153
Average	**8,000**	**7,940**	**3,989**	**954**	**475**	**403**	**308**	**121**	**394**	**84**

Source: National Center for Health Statistics and National Safety Council.

[a] Latest official figures.

[b] Includes some deaths not shown separately.

[c] Includes drowning in water transport accidents.

[d] Includes deaths resulting from conflagration regardless of nature of injury.

[e] Partly estimated.

Number of Episodes of Persons Injured, 1987

Class or Place	Average annual number of persons injured (in thousands)						
	ALL AGES	Under 5 Years	5-17 Years	18-24 Years	25-44 Years	45-64 Years	65 Years and Over
All episodes:[a]	**62,073**	**4,751**	**14,392**	**8,332**	**20,621**	**8,043**	**5,935**
Moving motor vehicle:	**5,808**	**44**	**973**	**1,345**	**2,138**	**887**	**420**
Traffic	*4,875*	*44*	*932*	*992*	*1,781*	*791*	*335*
Work:[c]	**9,131**	([b])	([b])	**1,775**	**5,698**	**1,601**	**57**
Place of accident:							
Home[c]	20,968	2,589	4,752	1,982	5,679	3,005	2,962
Street, highway	7,694	84	1,672	1,289	2,818	982	848
Industrial place[c]	7,378	55	186	1,694	4,252	1,106	86
Other	15,801	660	5,738	2,274	5,106	1,596	427

Source: National Center for Health Statistics, C.A. Schoenborn and M. Marano: Current estimates from the National Health Interview Survey, United States, 1987. *Vital and Health Statistics*, Series 10, No. 166. DHHS Pub. No. (PHS) 88-1594. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1988.

[a] Estimates are calculated for three separate characteristics: whether in a moving motor vehicle, whether at work, and by place of accident. The "all episodes" estimate includes cases unclassified for one or more of these characteristics. For this reason, and because there is duplication among categories, individual estimates do not add to the "all episodes" total.

[b] Not available or not applicable.

[c] Work includes employed persons 18 years of age and over only. Home includes yard, buildings, and sidewalks on the property as well as inside the house. Industrial place does *not* include business or professional offices, farms or other nonindustrial work locations.

Principal Classes of Accidental Deaths by State, 1988

State	TOTALS[a]		Motor-Vehicle[b]		Work[c]		Home		Public Non-Motor-Vehicle		Unclassified[d]	
	Deaths	Rate[e]	Deaths	Rate[e]	Deaths	Rate[e]	Deaths	Rate[e]	Deaths	Rate[e]	Deaths	Rate[e]
Total U.S.	**96,000**	**39.1**	**49,000**	**19.9**	**10,600**	**4.3**	**22,500**	**9.2**	**18,000**	**7.3**	...	...
Alabama	1,972	47.8	1,095	26.5	69	1.7	380	9.2	221	5.4	207	5.0
Alaska	...	...	...	...	...	...	...	...	...	...	...	...
Arizona	1,729	49.9	975	28.1	36	1.0	347	10.0	338	9.8	33	1.0
Arkansas	1,085	44.8	560	23.1	...	...	...	...	28	1.2	497	20.5
California	...	...	...	...	...	...	...	...	...	...	...	...
Colorado	1,158	35.2	544	16.5	30	0.9	158	4.8	230	7.0	196	6.0
Connecticut	...	...	...	...	...	...	...	...	...	...	...	...
Delaware	236	35.8	162	24.6	1	0.2	51	7.7	18	2.7	4	0.6
Dist. of Col.	230	37.1	107	17.3	11	1.8	58	9.4	45	7.3	9	1.5
Florida	5,478	44.3	3,209	25.9	268	2.2	1,026	8.3	164	1.3	811	6.6
Georgia (10 mos.)	2,032	38.1	1,214	22.8	41	0.8	301	5.6	191	3.6	285	5.3
Hawaii	325	29.7	153	14.0	11	1.0	48	4.4	87	8.0	26	2.4
Idaho	496	49.7	270	27.0	26	2.6	81	8.1	107	10.7	12	1.2
Illinois (8 mos.)	2,652	34.5	1,218	15.8	80	1.0	670	8.7	427	5.5	257	3.3
Indiana	...	...	...	...	...	...	...	...	...	...	...	...
Iowa	...	...	...	...	...	...	...	...	...	...	...	...
Kansas	933	37.5	487	19.6	39	1.6	195	7.8	153	6.2	59	2.4
Kentucky	1,552	41.7	828	22.3	76	2.0	220	5.9	188	5.1	240	6.5
Louisiana	...	...	...	...	...	...	...	...	...	...	...	...
Maine	435	36.1	234	19.4	19	1.6	45	3.7	135	11.2	2	0.2
Maryland	1,926	41.5	805	17.3	58	1.2	381	8.2	235	5.1	447	9.6
Massachusetts	...	...	...	...	...	...	...	...	...	...	...	...
Michigan	...	...	...	...	...	...	...	...	...	...	...	...
Minnesota	...	...	...	...	...	...	...	...	...	...	...	...
Mississippi	...	...	...	...	...	...	...	...	...	...	...	...
Missouri	2,170	42.2	1,116	21.7	75	1.5	404	7.9	563	11.0	12	0.2
Montana	402	50.0	223	27.7	26	3.2	56	7.0	87	10.8	10	1.2
Nebraska	623	38.9	286	17.9	41	2.6	130	8.1	164	10.2	2	0.1
Nevada	...	...	...	...	...	...	...	...	...	...	...	...
New Hampshire	284	25.9	175	16.0	12	1.1	52	4.7	45	4.1	0	0.0
New Jersey	2,022	26.2	957	12.4	59	0.8	503	6.5	234	3.0	269	3.5
New Mexico	970	64.2	533	35.3	24	1.6	156	10.3	248	16.4	9	0.6
New York	4,349	24.3	2,125	11.9	97	0.5	1,068	6.0	1,053	5.9	6	([f])
North Carolina	2,946	45.1	1,479	22.7	197	3.0	568	8.7	83	1.3	619	9.5
North Dakota	261	39.4	122	18.4	10	1.5	63	9.5	62	9.4	4	0.6
Ohio	2,912	26.8	1,664	15.3	105	1.0	858	7.9	277	2.6	8	0.1
Oklahoma	1,242	38.1	587	18.0	44	1.3	407	12.5	193	5.9	11	0.3
Oregon	1,268	46.3	726	26.5	48	1.8	187	6.8	239	8.7	68	2.5
Pennsylvania	...	...	...	...	...	...	...	...	...	...	...	...
Rhode Island	...	...	...	...	...	...	...	...	...	...	...	...
South Carolina	1,889	54.1	1,010	28.9	...	...	...	...	...	...	879	25.2
South Dakota	...	...	...	...	...	...	...	...	...	...	...	...
Tennessee	2,776	56.4	1,493	30.4	66	1.3	377	7.7	368	7.5	472	9.6
Texas	6,114	36.4	3,250	19.4	249	1.5	1,022	6.1	1,570	9.4	23	0.1
Utah	590	34.9	320	18.9	23	1.4	101	6.0	124	7.3	22	1.3
Vermont	158	28.4	95	17.1	7	1.3	27	4.9	18	3.2	11	2.0
Virginia	2,267	37.8	1,086	18.1	105	1.8	396	6.6	661	11.0	19	0.3
Washington (11 mos.)	1,551	36.6	745	17.6	44	1.0	240	5.7	211	5.0	311	7.3
West Virginia	868	46.1	476	25.3	56	3.0	150	8.0	14	0.7	172	9.1
Wisconsin	1,699	35.0	846	17.4	75	1.5	401	8.3	295	6.1	82	1.7
Wyoming	260	55.2	165	35.0	16	3.4	26	5.5	47	10.0	6	1.3
Puerto Rico[g]	565	17.2	317	9.6	25	0.8	8	0.2	169	5.1	46	1.4
Virgin Islands[g]	36	33.9	16	15.1	2	1.9	8	7.5	10	9.4	0	0.0

Source: Provisional reports of vital statistics registrars; deaths are by place of occurrence except for Arkansas which is residents only. U.S. totals are National Safety Council estimates.

[a] The all-class total may not equal the sum of the separate class totals because motor-vehicle and other transportation deaths occurring to persons in the course of their employment are included in the work death totals as well as the motor-vehicle and public nonmotor-vehicle totals.

[b] Differences between the figures given above and those on pages 64 and 65 are due in most cases to the inclusion of nontraffic deaths in this table.

[c] Work death totals may be too low where incomplete information on death certificates results in the deaths being included in public or unclassified. The work totals may include some cases which are not compensable. For compensable cases only, see page 40.

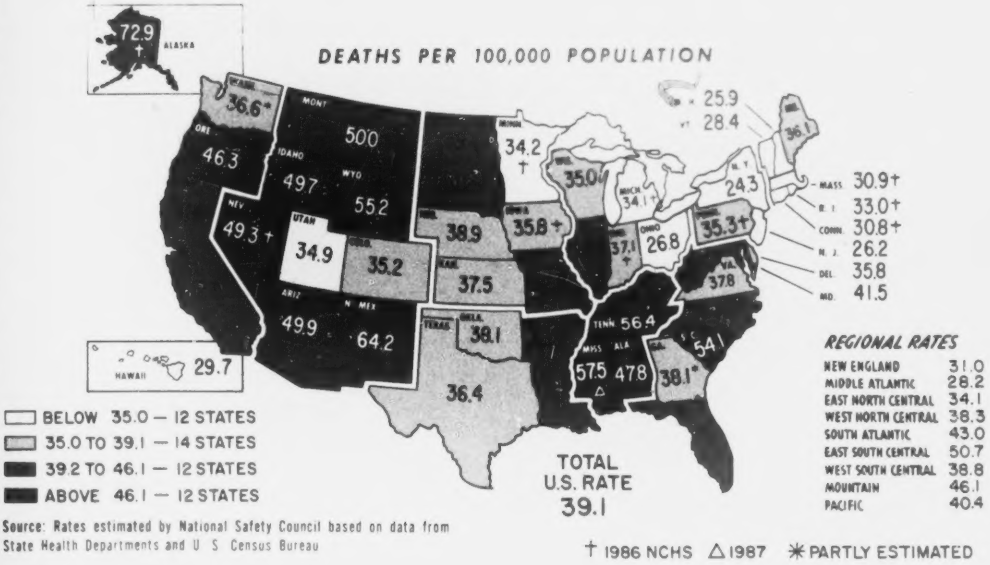
[d] Includes late effects (deaths occurring more than one year after the accident).

[e] Deaths per 100,000 population, adjusted to annual basis where less than 12 months reported.

[f] Rate was less than 0.05.

[g] Not included in Total U.S.

Accidental death rates by state, 1988


DEATHS PER 100,000 POPULATION
ALASKA 72.9 †
WASH. 36.6*
ORE. 46.3
IDAHO 49.7
MONT. 50.0
WYO. 55.2
NEV. 49.3 †
UTAH 34.9
COLO. 35.2
ARIZ. 49.9
N. MEX. 64.2
HAWAII 29.7
MINN. 34.2 †
IOWA 35.8 †
NEB. 38.9
KAN. 37.5
OKLA. 38.1
TEXAS 36.4
WIS. 35.0
MICH. 34.1 †
IND. 37.1 †
OHIO 26.8
PA. 35.3 †
N. Y. 24.3
VA. 37.8
TENN. 56.4
MISS. 57.5 △
ALA. 47.8
GA. 38.1*
S. C. 54.1
N. H. 25.9
VT. 28.4
ME. 36.1
MASS. 30.9 †
R. I. 33.0 †
CONN. 30.8 †
N. J. 26.2
DEL. 35.8
MD. 41.5
TOTAL U.S. RATE 39.1

☐ BELOW 35.0 — 12 STATES
▨ 35.0 TO 39.1 — 14 STATES
■ 39.2 TO 46.1 — 12 STATES
■ ABOVE 46.1 — 12 STATES

REGIONAL RATES

NEW ENGLAND	31.0
MIDDLE ATLANTIC	28.2
EAST NORTH CENTRAL	34.1
WEST NORTH CENTRAL	38.3
SOUTH ATLANTIC	43.0
EAST SOUTH CENTRAL	50.7
WEST SOUTH CENTRAL	38.8
MOUNTAIN	46.1
PACIFIC	40.4

TOTAL U.S. RATE 39.1

Source: Rates estimated by National Safety Council based on data from State Health Departments and U. S. Census Bureau

† 1986 NCHS △ 1987 ✱ PARTLY ESTIMATED

Accidental Deaths by State, 1985-1986

State	Deaths[a] 1986[b]	Deaths[a] 1985	Death Rates[c] 1986	Death Rates[c] 1985
U.S.	**95,277**	**93,457**	**39.5**	**39.1**
Alabama	2,183	1,984	53.9	49.3
Alaska	388	480	72.9	92.0
Arizona	1,812	1,632	55.3	51.1
Arkansas	1,251	1,186	52.8	50.3
California	10,909	10,451	40.4	39.7
Colorado	1,312	1,296	40.2	40.1
Connecticut	982	932	30.8	29.4
Delaware	253	220	40.0	35.4
Dist. of Col.	269	315	43.0	50.6
Florida	5,225	5,254	44.7	46.2
Georgia	2,919	2,864	47.9	47.9
Hawaii	299	312	28.1	29.7
Idaho	519	497	51.8	49.5
Illinois	3,770	3,500	32.6	30.3
Indiana	2,039	1,993	37.1	36.2
Iowa	1,019	1,043	35.8	36.2
Kansas	1,013	979	41.2	40.0
Kentucky	1,659	1,596	44.5	42.8
Louisiana	2,028	2,117	45.1	47.2
Maine	418	469	35.7	40.3
Maryland	1,487	1,556	33.3	35.4
Massachusetts	1,800	1,797	30.9	30.9
Michigan	3,113	3,114	34.1	34.3
Minnesota	1,439	1,478	34.2	35.3
Mississippi	1,452	1,409	55.3	53.9
Missouri	2,410	2,111	47.6	41.9
Montana	431	441	52.8	53.5
Nebraska	662	584	41.4	36.4
Nevada	477	588	49.3	62.8
New Hampshire	343	372	33.4	37.2
New Jersey	2,224	2,186	29.2	28.9
New Mexico	866	889	58.6	61.3
New York	5,399	5,246	30.3	29.6
North Carolina	3,208	2,997	50.7	47.9
North Dakota	257	254	37.8	37.1
Ohio	3,378	3,403	31.4	31.7
Oklahoma	1,426	1,521	43.1	46.0
Oregon	1,244	1,248	46.0	[illegible]
Pennsylvania	4,198	4,178	35.3	[illegible]
Rhode Island	322	288	33.0	29.8
South Carolina	1,875	1,652	55.5	49.5
South Dakota	313	320	44.2	45.2
Tennessee	2,627	2,379	54.7	49.9
Texas	7,077	7,351	42.4	44.9
Utah	671	650	40.3	39.5
Vermont	230	237	42.5	44.3
Virginia	2,286	2,197	39.4	38.5
Washington	1,610	1,659	36.1	37.6
West Virginia	885	922	46.2	47.6
Wisconsin	1,563	1,557	32.7	32.6
Wyoming	283	279	55.8	54.7

Source: National Center for Health Statistics. See page 31 for comparability.

[a] Deaths for each state are by place of occurrence. These deaths include nonresident aliens which are excluded from the U.S. totals (1986 - 546 deaths, 1985 - 526).

[b] Latest official figures.

[c] Rates are deaths per 100,000 population.

Major Disasters, 1988

Disasters are front-page news even though the lives lost in the United States are relatively few when compared to the day-to-day life losses from ordinary accidents. Only one major disaster taking 25 or more lives occurred in the U.S. during 1988. This disaster involved 27 fatalities compared to an average of 327 deaths per year for the 20-year period 1968-87. The 1988 major disaster death total was the lowest in the last 20 years; the next lowest was 34 deaths in 1983 and the highest was 766 in 1972.

Type and Location	No. of Deaths	Date of Disaster
Collision between church bus and pick-up truck, Carrollton, KY	27	May 14, 1988

Source: Kentucky Department of Human Resources.

Largest U.S. Disasters by Category

Type and Location		No. of Deaths	Date of Disaster
Floods:	Galveston tidal wave	6,000	Sept. 8, 1900
	Johnstown, Pa.	2,209	May 31, 1889
	Ohio and Indiana	732	Mar. 28, 1913
	St. Francis, Calif., dam burst	450	Mar. 13, 1928
	Ohio and Mississippi River valleys	380	Jan. 22, 1937
Hurricanes:	Florida	1,833	Sept. 16-17, 1928
	New England	657	Sept. 21, 1938
	Louisiana	500	Sept. 29, 1915
	Florida	409	Sept. 1-2, 1935
	Louisiana and Texas	395	June 27-28, 1957
Tornadoes:	Illinois	606	Mar. 18, 1925
	Mississippi, Alabama, Georgia	402	Apr. 2-7, 1936
	Southern and Midwestern states	307	Apr. 3, 1974
	Ind., Ohio, Mich., Ill. and Wis.	272	Apr. 11, 1965
	Ark., Tenn., Mo., Miss. and Ala.	229	Mar. 21-22, 1952
Earthquakes:	San Francisco earthquake and fire	452	Apr. 18, 1906
	Alaskan earthquake-tsunami hit Hawaii, Calif.	173	Apr. 1, 1946
	Long Beach, Calif., earthquake	120	Mar. 10, 1933
	Alaskan earthquake and tsunami	117	Mar. 27, 1964
	San Fernando-Los Angeles, Calif., earthquake	64	Feb. 9, 1971
Marine:	"Sultana" exploded—Mississippi River	1,547	Apr. 27, 1865
	"General Slocum" burned—East River	1,030	June 15, 1904
	"Empress of Ireland" ship collision—St. Lawrence River	1,024	May 29, 1914
	"Eastland" capsized—Chicago River	812	July 24, 1915
	"Morro-Castle" burned—off New Jersey coast	135	Sept. 8, 1934
Aircraft:	Crash of scheduled plane near O'Hare Airport, Chicago	273	May 25, 1979
	Crash of scheduled plane, Detroit, Michigan	156	Aug. 16, 1987
	Crash of scheduled plane in Kenner, La.	154	July 9, 1982
	Two-plane collision over San Diego, Calif.	144	Sept. 25, 1978
	Crash of scheduled plane, Ft. Worth/Dallas Airport	135	Aug. 2, 1985
Railroad:	Two-train collision near Nashville, Tenn.	101	July 9, 1918
	Two-train collision, Eden, Colo.	96	Aug. 7, 1904
	Avalanche hit two trains near Wellington, Wash.	96	Mar. 1, 1910
	Bridge collapse under train, Ashtabula, Ohio	92	Dec. 29, 1876
	Rapid transit train derailment, Brooklyn, N.Y.	92	Nov. 1, 1918
Fires:	Peshtigo, Wis., and surrounding area forest fire	1,152	Oct. 9, 1871
	Iroquois Theatre, Chicago	603	Dec. 30, 1903
	Northeastern Minnesota, forest fire	559	Oct. 12, 1918
	Cocoanut Grove nightclub, Boston	492	Nov. 28, 1942
	North German Lloyd Steamships, Hoboken, N.J.	326	June 30, 1900
Explosions:	Texas City, Texas, ship explosion	552	Apr. 16, 1947
	Port Chicago, Calif., ship explosion	322	July 18, 1944
	New London, Texas, school explosion	294	Mar. 18, 1937
	Oakdale, Pa., munitions plant explosion	158	May 18, 1918
	Eddystone, Pa., munitions plant explosion	133	Apr. 10, 1917
Mines:	Monongha, West Va., coal mine explosion	361	Dec. 6, 1907
	Dawson, New Mexico, coal mine fire	263	Oct. 22, 1913
	Cherry, Ill., coal mine fire	259	Nov. 13, 1909
	Jacobs Creek, Pa., coal mine explosion	239	Dec. 19, 1907
	Scofield, Utah, coal mine explosion	200	May 1, 1900

Source: World Almanac, National Transportation Safety Board, National Weather Service, National Fire Protection Association, Chicago Historical Society, American Red Cross, U.S. Bureau of Mines, National Oceanic and Atmospheric Administration, and city and state Boards of Health.

Comparability of Accidental Death Totals

Accidental deaths are classified on the basis of a World Health Organization standard, "The International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD)." The ICD is revised each decade and these revisions can affect comparability from year to year.

The sixth revision (1948) substantially expanded the list of external causes and provided for classifying the place of occurrence. Changes in the classification procedures for this revision as well as the seventh (1958) and eighth (1968) revisions classified as disease deaths some cases previously classified as accidents. The eighth revision also expanded and reorganized some external cause sections. The ninth revision, which took effect in 1979, provides more detail on the agency involved, the victim's activity, and the accident location. Specific external cause categories affected by the revisions are noted in the historical tables.

Beginning with 1970 data, tabulations published by the National Center for Health Statistics no longer include deaths of nonresident aliens. In 1986, there were 546 such accidental deaths of which 275 were motor-vehicle.

Accidental Deaths and Death Rates, Canadian Provinces, 1987

Province	ALL TYPES[a]		Motor-Vehicle	Falls	Fires, Burns	Drowning[c]	Ingest. of Food, Object	Poison (solid, liquid)
	Number	Rate[b]						
All Provinces	**9,492**	**37.0**	**4,313**	**1,907**	**433**	**426**	**338**	**344**
Alberta	933	39.2	538	135	33	29	25	7
British Columbia	1,333	45.6	585	294	37	71	22	92
Manitoba	407	37.7	165	84	21	35	17	16
New Brunswick	292	41.0	145	52	27	14	10	6
Newfoundland	158	27.8	65	23	17	17	5	5
Northwest Territories	33	63.5	13	0	2	4	0	3
Nova Scotia	334	38.0	162	63	24	13	23	5
Ontario	3,030	32.7	1,249	804	132	130	116	155
Prince Edward Island	49	38.6	19	12	4	3	0	2
Quebec	2,381	36.1	1,109	357	99	81	95	32
Saskatchewan	515	50.8	248	83	32	28	24	20
Yukon	27	112.5	15	0	5	1	1	1
Rate[b] (All Provinces)		**37.0**	**16.8**	**7.4**	**1.7**	**1.7**	**1.3**	**1.3**

Source: Vital Statistics and Health Status Section, Health Division, Statistics Canada.

[a] Includes types not shown separately.

[b] Per 100,000 population.

[c] Excludes water transport drownings.

Accidental Deaths and Death Rates by Nation

Nation	Year	Deaths	Rate[a]	Nation	Year	Deaths	Rate[a]
Hong Kong	1987	776	13.8	**United States**	**1986**	**95,277**	**39.5**
Singapore	1987	431	16.5	Yugoslavia	1987	9,273	39.6
Bahrain	1987	71	17.1	Greece	1986	4,070	40.8
England, Wales	1987	11,529	22.9	Bulgaria	1987	3,755	41.9
Japan	1987	28,255	23.2	Denmark	1986	2,254	44.0
Netherlands	1986	3,730	25.6	Uruguay	1986	1,345	44.3
Thailand	1987	14,009	26.1	Luxembourg	1987	167	44.9
Chile	1986	3,387	27.7	Belgium	1986	4,452	45.1
Kuwait	1987	535	28.6	Portugal	1987	4,673	45.6
Costa Rica	1986	824	30.9	New Zealand	1986	1,507	46.0
Mauritius	1987	317	31.6	Finland	1986	2,312	47.0
West Germany	1987	19,517	31.9	Poland	1987	17,946	47.6
Ireland	1986	1,155	32.6	Ecuador	1986	4,712	48.8
Iceland	1987	82	33.3	Norway	1986	2,042	49.0
Sweden	1986	2,828	33.8	Switzerland	1987	3,367	51.4
Australia	1986	5,432	33.9	Austria	1987	3,904	51.5
Northern Ireland	1987	542	34.4	Czechoslovakia	1986	8,691	56.0
Panama	1986	779	35.0	France	1986	34,525	62.3
Israel	1986	1,531	35.6	Hungary	1987	7,729	72.8
Canada	1986	9,096	35.9	Cuba	1986	7,470	73.8
Scotland	1987	1,873	36.6				

Source: World Health Organization.
NOTE: Differences in reporting among nations affect comparisons.

[a] Per 100,000 population.

WORK ACCIDENTS, 1988

Between 1912 and 1988, accidental work deaths per 100,000 population were reduced 81 per cent, from 21 to 4. In 1912, an estimated 18,000 to 24,000 workers' lives were lost. In 1988, in a work force more than triple in size and producing almost 11 times as much, there were only 10,600 work deaths.

	Workers[a] (000)	Deaths	Death Rates[b]	Disabling Injuries[a]
All Industries	114,300	10,600[c]	9	1,800,000
Agriculture[d]	3,100	1,500	48[e]	140,000
Mining, quarrying[d]	800	200	25	30,000
Construction	6,500	2,200	34	210,000
Manufacturing	19,500	1,100	6	350,000
Transportation and public utilities	5,800	1,400	24	140,000
Trade[d]	27,000	1,100	4	320,000
Services[d]	34,600	1,500	4	330,000
Government	17,000	1,600	9	280,000

Source: National Safety Council estimates (rounded) based on data from the National Center for Health Statistics, state vital statistics departments (see page 28), and state industrial commissions. Numbers of workers are based on Bureau of Labor Statistics data and include persons aged 14 and over.

[a] See definitions on inside back cover.

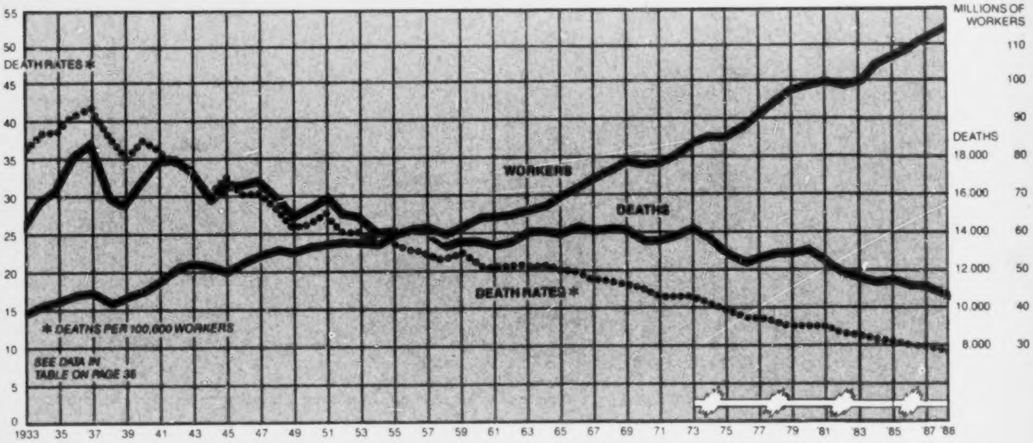
[b] Deaths per 100,000 workers in each group.

[c] About 3,900 of the deaths and 200,000 of the injuries involved motor vehicles.

[d] Agriculture includes forestry and fishing; see also page 97. Mining and quarrying includes oil and gas extraction (preliminary MSHA reports indicate 102 deaths in coal, metal, and non metal mining in 1988). Trade includes wholesale and retail trade. Services includes finance, insurance and real estate.

[e] Agriculture rate excludes deaths of persons under 14 years of age. Rates for other industry divisions do not require this adjustment. Deaths of persons under 14 are included in the agriculture death total.

Workers, Deaths and Death Rates



Deaths in work accidents

Of the 10,600 work deaths in 1988, about 42 per cent were to those aged 25 to 44 years. By type of accident, more than one third of all fatalities involved motor-vehicle accidents. Falls were the next highest type with about 13 per cent.

The table below shows the number of work deaths by age in 1988 and the per cent distribution by type of accident for the various age groups.

Work Deaths by Type of Accident and Age, 1986 and 1988

Type of Accident	All Ages	Age 5-14	15-24	25-44	45-64	65-74	75 & Over
All Types	*10,600*	*100*	*1,800*	*4,500*	*3,000*	*800*	*400*
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Motor-vehicle	35.1	0.0	50.0	34.0	34.5	25.0	0.0
Falls	12.6	5.0	9.0	8.8	14.7	19.5	50.8
Electric current	4.3	3.0	6.3	5.2	2.9	0.9	0.5
Drowning	3.6	0.0	5.3	4.1	2.6	1.3	2.0
Fires, burns	3.4	8.0	2.9	3.4	2.9	5.6	4.3
Poison (solid, liquid)	2.9	0.0	1.1	4.9	2.0	1.5	0.0
Air transport	2.8	0.0	0.6	4.4	2.9	0.5	0.0
Water transport	2.0	0.0	2.1	2.5	1.7	0.5	0.3
Poison (gas, vapor)	1.6	0.0	1.8	1.8	1.4	1.1	0.3
Other[a]	31.7	84.0	20.9	30.9	34.4	44.1	41.8

Source: National Safety Council estimates. All types totals are 1988 estimates. Per cent distribution based on 1986 data (latest year available).

[a] Principal types include machinery, struck by falling object, railway, and mechanical suffocation.

Work injuries by type of accident

About 28 per cent of all disabling work injuries result from overexertions, according to data from the Bureau of Labor Statistics 1983 Supplementary Data System (SDS) file. Injuries involving being struck by or struck against an object were the next most frequent with about 26 per cent. Per cent distributions by type of accident for major industry divisions are shown below.

The SDS file used in the tabulations includes only workers' compensation cases that involved disability from 18 states in 1983.

Work Injuries Involving Disability by Type of Accident and Industry Division, 1983

Type of Accident	All Industries	Agriculture[a,b]	Mining[b]	Construction	Manufacturing	Trans. and Pub. Util.	Trade[b]	Services[b]	Public Sector
Total[c]	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Overexertion	28.2	21.9	22.2	23.6	29.4	28.8	28.4	31.9	26.2
Struck by or struck against	25.9	31.5	29.9	28.6	27.1	19.6	29.9	21.5	21.9
Falls	16.4	18.0	12.8	21.4	11.7	18.9	16.5	18.9	18.5
Bodily reaction	7.4	6.3	5.9	6.4	6.7	8.9	6.3	7.9	10.2
Caught in or between	6.0	6.9	9.5	4.8	9.7	4.7	4.9	4.0	3.5
Contact with radiation, caustics, etc.	3.5	5.3	7.8	2.7	3.8	2.1	1.9	4.3	5.0
Motor-vehicle accident	3.0	2.6	2.6	2.0	1.0	9.1	2.4	3.1	5.5
Rubbed or abraded	2.6	2.8	2.5	4.4	3.5	1.7	1.9	1.8	1.6
Contact with temperature extremes	2.3	1.2	1.8	2.1	2.0	0.9	4.1	1.9	1.7
Other, nonclassifiable	4.7	3.7	4.9	4.0	4.9	5.3	3.8	4.7	6.0

Source: Bureau of Labor Statistics Supplementary Data System, based on 999,703 cases involving disability from 18 states, 1983.

[a] Excludes farms with less than 11 employees.

[b] Agriculture includes forestry and fishing; mining includes quarrying and oil and gas extraction; trade includes wholesale and retail; services includes finance, insurance, and real estate.

[c] Components may not add to totals due to rounding.

Time lost because of work injuries

DAYS LOST

TOTAL TIME LOST IN 1988 .... **75,000,000**

Due to Accidents in 1988 .... **35,000,000**

Includes primarily the actual time lost during the year from disabling injuries, except that it does not include time lost on the day of the injury or time required for further medical treatment or checkup following the injured person's return to work.

Fatalities are included at an average loss of 150 days per case, and permanent impairments are included at actual days lost plus an allowance for lost efficiency resulting from the impairment.

Not included is time lost by persons with nondisabling injuries or other persons directly or indirectly involved in accidents.

Due to Accidents in Prior Years **40,000,000**

This is an indicator of the productive time lost in 1988 due to permanently disabling injuries that occurred in prior years.

TIME LOSS IN FUTURE YEARS FROM 1988 ACCIDENTS **100,000,000**

Includes time lost in future years due to on-the-job deaths and permanently disabling injuries that occurred in 1988.

Work accident costs

The true cost to the nation, to employers, and to individuals of work related deaths and injuries is much greater than the cost of workers' compensation insurance alone. The figures presented below show the National Safety Council's estimates of the total costs of occupational deaths and injuries. Uninsured costs are estimated, conservatively, to be equal to insured costs. The Council recommends, however, that each organization establish its own ratio of uninsured to insured costs through a study of its own experience. Guidance for such a study is contained in the Council's *Accident Prevention Manual.*

TOTAL COST IN 1988 .... **$47.1 billion**

Includes wage losses of $7.9 billion, insurance administrative costs of $6.0 billion, and medical costs of $8.1 billion. Includes uninsured costs of $22.0 billion such as the money value of time lost by workers other than those with disabling injuries, who are directly or indirectly involved in accidents, and the cost of the time required to investigate accidents, write up accident reports, etc. Also includes fire losses of $3.1 billion, but excludes the cost of other property damage.

Cost per Worker **$410**

This figure indicates the value of goods or services each worker must produce to offset the cost of work injuries. It is *not* the average cost of a work injury.

Cost per Death **$550,000**

Cost per Disabling Injury **$16,800**

These figures include estimates of wage losses, medical expenses, insurance administration costs, and uninsured costs, and exclude any property damage costs.

Work Accidental Deaths and Death Rates, All Industries, 1933-1988

Year	Work Deaths	Work M-V[a]	Workers[b] (000)	Death Rate[c]	Year	Work Deaths	Work M-V[a]	Workers[b] (000)	Death Rate[c]
1933	14,500	(d)	39,000	37	1965	14,100	3,000	69,700	20
1938	16,000	(d)	42,100	38	1966	14,500	3,200	72,600	20
1943	17,500	(d)	52,200	34	1967	14,200	3,200	74,700	19
1944	16,000	(d)	51,800	31	1968	14,300	3,600	76,900	19
1945	16,500	(d)	50,200	33	1969	14,300	3,600	79,000	18
1946	16,500	(d)	52,400	31	1970	13,800	3,700	77,700	18
1947	17,000	2,500	54,900	31	1971	13,700	4,200	78,500	17
1948	16,000	2,100	56,000	29	1972	14,000	4,300	81,300	17
1949	15,000	2,200	55,200	27	1973	14,300	4,500	84,300	17
1950	15,500	2,700	56,400	27	1974	13,500	4,000	86,200	16
1951	16,000	2,800	57,450	28	1975	13,000	3,900	85,200	15
1952	15,000	2,800	57,800	26	1976	12,500	4,100	88,100	14
1953	15,000	3,100	58,050	26	1977	12,900	4,300	91,500	14
1954	14,000	2,800	57,500	24	1978	13,100	4,500	95,500	14
1955	14,200	3,000	59,400	24	1979	13,000	4,500	98,300	13
1956	14,300	3,000	61,100	23	1980	13,200	4,500	98,800	13
1957	14,200	2,900	61,300	23	1981	12,500	4,500	99,800	13
1958	13,300	2,600	59,900	22	1982	11,900	4,100	98,800	12
1959	13,800	2,800	61,300	23	1983	11,700	4,100	100,100	12
1960	13,800	2,800	64,400	21	1984	11,500	4,200	104,300	11
1961	13,500	2,600	64,500	21	1985	11,500	4,100	106,400	11
1962	13,700	2,700	65,200	21	1986	11,100	3,900	108,900	10
1963	14,200	3,000	66,200	21	1987	11,100	3,900	111,700	10
1964	14,200	3,100	67,600	21	1988	10,600	3,900	114,300	9

Source: National Safety Council estimates (1986, 1987 revised; 1988 preliminary) based on data from the National Center for Health Statistics, state departments of health, and state industrial commissions; numbers of workers are based on Bureau of Labor Statistics data.

[a] Work deaths in motor-vehicle accidents. These deaths are included in the "Work Deaths" column.

[b] Workers are all persons gainfully employed, including owners, managers, other paid employees, the self-employed, and unpaid family workers, but excluding domestic servants. Due to changes in estimating procedures, the number of workers for 1970 and later years have been revised and are not comparable to those for earlier years.

[c] Deaths per 100,000 workers.

[d] Comparable figures not available.

Work Deaths and Death Rates by Industry Division, 1979-1988

Year	Agriculture[a]	Mining, Quarrying[a]	Construction	Manufacturing	Trans. and Pub. Util.	Trade[a]	Services[a]	Government
				DEATHS				
1979	1,900	500	2,600	1,700	1,600	1,300	1,800	1,600
1980	2,000	500	2,500	1,700	1,600	1,400	1,800	1,700
1981	1,900	600	2,300	1,500	1,700	1,200	1,700	1,600
1982	1,800	600	2,100	1,100	1,500	1,300	1,800	1,700
1983	1,800	500	2,100	1,200	1,500	1,200	1,800	1,600
1984	1,700	500	2,200	1,100	1,600	1,200	1,800	1,400
1985	1,600	400	2,400	1,200	1,500	1,300	1,800	1,300
1986	1,800	300	2,300	1,000	1,600	1,100	1,600	1,400
1987	1,700	300	2,100	1,000	1,400	1,200	1,900	1,500
1988	1,500	200	2,200	1,100	1,400	1,100	1,500	1,600
				DEATH RATES[b]				
1979	54	56	46	8	30	6	8	10
1980	56	50	45	8	30	6	7	11
1981	54	55	42	7	31	5	7	10
1982	52	50	40	6	28	6	7	11
1983	52	50	39	6	28	5	7	10
1984	49	50	39	6	29	5	7	9
1985	49	40	40	6	27	5	6	8
1986	55	38	37	5	29	4	5	8
1987	53	38	33	5	25	5	6	9
1988	48	25	34	6	24	4	4	9

Source: National Safety Council estimates (1986, 1987 revised; 1988 preliminary) based on data from the National Center for Health Statistics, state departments of health, state industrial commissions and the Bureau of Labor Statistics.

[a] Agriculture includes forestry and fishing; see also page 97. Mining and quarrying includes oil and gas extraction. Trade includes wholesale and retail trade. Services includes finance, insurance and real estate.

[b] Deaths per 100,000 workers in each industry group. Agriculture rate excludes deaths of persons under 14 years of age. Rates for other industries do not require this adjustment. Deaths of persons under 14 are included in the agriculture death total.

Worker deaths and injuries on and off the job

Three out of four deaths, and more than half of the injuries suffered by workers in 1988 occurred off the job. The ratios of off-the-job deaths and injuries to on-the-job were 3.52 to 1 and 1.56 to 1, respectively. Production time lost due to off-the-job accidents totaled about 60,000,000 days in 1988, compared with 35,000,000 days lost by workers injured on the job. Production time lost in future years due to off-the-job accidents in 1988 will total an estimated 290,000,000 days. Off-the-job accidents to workers cost the nation at least $44.0 billion in 1988.

Place	Deaths		Disabling Injuries 1988	1988 Rates[a]	
	1988	1987		Deaths	Injuries
All Accidents	**47,900**	**47,300**	**4,600,000**	**.07**	**6.9**
On the job	**10,600**	**11,100**	**1,800,000**	**.05**	**7.9**
Off the job	**37,300**	**36,200**	**2,800,000**	**.09**	**6.4**
Motor-vehicle	24,600	24,100	1,000,000	.59	24.0
Public nonmotor-vehicle	6,200	6,100	800,000	.04	5.1
Home	6,500	6,000	1,000,000	.03	4.2

Source: National Safety Council estimates.

[a] Per 1,000,000 hours exposure, by place.

Average Workers' Compensation Payments by Nature of Injury, 1985

The table below shows the per cent distribution of closed workers' compensation cases in 9 states during 1985 by nature of injury or illness, and the average amount of indemnity compensation and medical payments per case.

Nature of Injury or Illness	Per Cent of Total Cases Closed	Average Indemnity Compensation[a]	Average Medical Payment[a]
Total[b]	**100.0%**	**$4,035**	**$2,012**
Sprains, strains	44.7	3,568	1,641
Fracture	12.1	4,278	2,632
Cut, laceration, puncture	10.7	1,509	1,217
Contusion, crushing, bruise	9.5	2,409	1,218
Multiple injuries	5.9	7,612	3,239
Dislocation	2.9	13,375	5,265
Hernia, rupture	2.5	1,897	2,130
Burn (heat)	1.8	2,103	2,924
Inflammation or irritation of joints, tendons, etc.	1.5	4,064	2,524
Conditions of nervous system	1.1	3,870	2,215
Hearing loss or impairment	1.0	3,161	563
Amputation or enucleation	0.8	6,290	3,141
Scratches, abrasions	0.8	1,197	698
Concussion	0.5	6,160	2,381
Burn (chemical)	0.4	1,652	1,410
Systemic poisoning	0.4	6,141	3,204
Dermatitis	0.4	2,681	461
Heart conditions (includes heart attack)	0.2	55,121	7,050
Symptoms and ill-defined conditions	0.2	3,575	1,550
Infective or parasitic disease	0.1	1,584	729
Pneumoconiosis	0.1	35,059	1,542
Mental disorders	0.1	11,416	2,956
Electric shock, electrocution	0.1	15,577	4,542
Conditions of respiratory system	0.1	16,050	1,958
Eye, other diseases of the eye	0.1	2,949	994
Cerebrovascular, other circulatory conditions	0.1	21,383	3,559
Hepatitis (serum and infective)	(c)	4,444	489
Radiation effects	(c)	228	212
Hemorrnoids	(c)	1,326	1,445
Effects of environmental heat	(c)	6,079	1,185
Neoplasm, tumor	(c)	25,363	1,700
Nonclassifiable	1.8	4,612	2,651

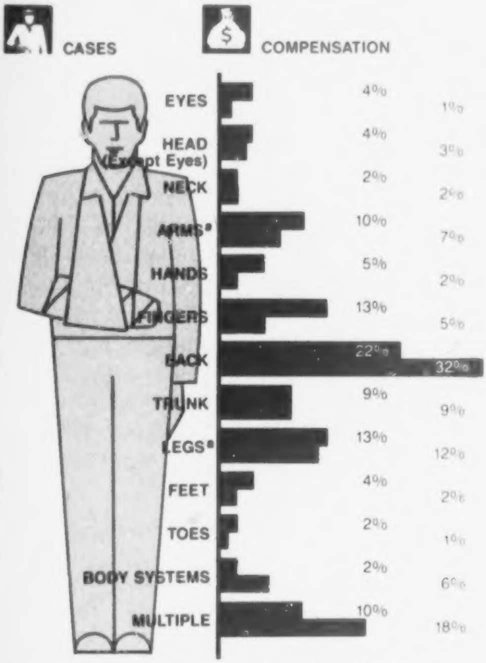
Source: Bureau of Labor Statistics Supplementary Data System, based on 353,449 closed cases from 9 states, 1985.

[a] Cases in which no indemnity compensation or medical payment was awarded are excluded when computing averages. Overall average based on 345,613 indemnity compensation cases and 101,706 medical payment cases.

[b] Includes some categories not listed separately.

[c] Less than 0.05 per cent.

Part of body injured in work accidents



Source: State Labor Departments, 1985-1987; cases—21 States, compensation—12 States.

[a] **Includes multiple or NEC extremity injuries amounting to about 1 per cent of the total cases and compensation.**

Disabling work injuries in the entire nation totaled approximately 1,800,000 in 1988. Of these, about 10,600 were fatal and 60,000 resulted in some permanent impairment.

Injuries to the back occurred most frequently, followed by thumb and finger injuries and leg injuries, according to state labor department reports. See pages 34 and 40 for other compensation figures.

Eyes	**70,000**
Head (except eyes)	**70,000**
Neck	**40,000**
Arms[a]	**180,000**
Hands	**90,000**
Fingers	**230,000**
Back	**400,000**
Trunk	**160,000**
Legs[a]	**230,000**
Feet	**70,000**
Toes	**40,000**
Body Systems	**40,000**
Multiple	**180,000**

Average Workers' Compensation Payments by Part of Body, 1985

The table below shows the per cent distribution of closed workers' compensation cases in 9 states during 1985 by part of body, and the average amount of indemnity compensation and medical payments per case.

Part of Body[a]	Per Cent of Total Cases Closed	Average Indemnity Compensation[b]	Average Medical Payment[b]
Total	**100.0%**	**$4,035**	**$2,012**
Head	5.1	3,312	1,874
Eye	*1.1*	*2,502*	*1,164*
Neck	1.7	5,303	2,438
Upper extremities	25.6	2,234	1,382
Arm	*4.2*	*3,024*	*1,591*
Wrist	*4.4*	*2,915*	*1,538*
Hand	*4.1*	*2,114*	*1,328*
Finger	*11.7*	*1,627*	*1,150*
Trunk	37.0	4,583	2,224
Back	*26.2*	*5,193*	*2,358*
Lower extremities	20.0	2,848	1,734
Leg	*9.5*	*3,704*	*2,356*
Foot	*3.6*	*2,129*	*1,118*
Toe	*1.8*	*1,209*	*791*
Multiple	9.0	7,323	3,610
Body system	1.2	20,940	3,110
Nonclassifiable	0.3	7,219	2,202

Source: Bureau of Labor Statistics Supplementary Data System, based on 353,449 closed cases from 9 states, 1985.

[a] Group totals contain some categories not listed separately.

[b] Cases in which no indemnity compensation or medical payment was awarded are excluded when computing averages. Overall average based on 345,613 indemnity compensation cases and 101,706 medical payment cases.

Occupational fatality estimates

There are three commonly cited estimates of occupational fatalities. Each is quite different from the others not only in magnitude but also in scope and coverage. There are significant differences not only in what is counted, but also in the population covered, data sources, and methods. To use them properly, it is necessary to understand what they mean and how they were made.

National Safety Council[a]. The Council's estimate, 10,600 for 1988, covers unintentional injury deaths (ICD underlying cause of death codes E800–E949) of persons in the public and private civilian work force, age 14 and over, who were wage or salary workers (excluding private household workers), self-employed, or unpaid family workers. The non-motor-vehicle portion of the most recent (1986) National Center for Health Statistics (NCHS) death certificate tabulation by external cause and age group was apportioned into three major classes—work, home, and public—using factors determined from special studies. The work-motor-vehicle duplication was estimated from occupant deaths by type of vehicle, as reported by state traffic authorities, and added to the non-motor-vehicle work deaths to obtain the total. Because the NCHS tabulations were not current, state vital statistics and workers' compensation data were used to bring the estimates up to the current year using the link relative technique.

Bureau of Labor Statistics[b]. The BLS estimate, 3,400 for 1987, covers deaths due to injuries and illnesses that result from a work accident or from an exposure in the work environment in private sector employers with 11 or more employees (about two thirds of the total workforce). The estimate was obtained through an annual statistical survey of about 280,000 establishments stratified by industry and employment size category. The relative standard error of the fatality estimate is 7 per cent.

National Institute for Occupational Safety and Health[c]. The NIOSH estimate, about 6,400 in 1985, covers traumatic injuries (intentional and unintentional) of persons 16 years of age and older. It was made by counting death certificates obtained directly from the states using three criteria: (a) injury as an immediate, underlying or contributing cause of death (ICD codes E800–E999), (b) 16 years of age or older, and (c) a positive response to the "injury at work" item on the death certificate.

Discussion. Reconciliation of these three estimates involves adjusting for differences in definitions, coverage, sources, and methods. More fundamentally, however, all the estimates depend on the accuracy of the underlying record keeping systems. Considerable work is needed to improve these systems.

The Council and NIOSH estimates rely on the accuracy with which the death certificate is completed. It is well known that not all work-related fatalities can be identified with death certificates alone, or even in combination with workers' compensation reports[d]. The NIOSH estimate is probably understated because of death certificates with the "injury at work" item left blank or where the work association was missed by the certifier and the item was marked "no."

The BLS estimate relies on the accuracy of employers' records of work-related deaths and, especially in the case of occupational illnesses, the employer's ability to recognize the work relationship.

[a] National Safety Council Statistics Department. (1982). *Documentation of National Safety Council statistics department estimating procedures for motor-vehicle, work, home, and public deaths and death rates.* Chicago: Author.

[b] Bureau of Labor Statistics. (1989). *Occupational injuries and illnesses in the United States by industry, 1987*, Bulletin 2328. Washington, DC: U.S. Government Printing Office.

[c] National Institute for Occupational Safety and Health. (March 1989 Revised). *National traumatic occupational fatalities, 1980-1985.* Morgantown, W. V.: Author.

[d] Baker, S.P., Samkoff, J.S., Fisher, R.S., & Van Buren, C.B. (1982). Fatal occupational injuries. *The Journal of the American Medical Association, 248*(6), 692-697

Average Workers' Compensation Payments by Type of Accident, 1985

The average compensation paid per closed workers' compensation case in 1985 was about $4,035 in indemnity compensation and $2,012 in medical payments, according to data from 353,449 cases closed in 9 states reported in the Bureau of Labor Statistics Supplementary Data System.

Average payments varied significantly by type of accident or exposure. Specified types with highest average indemnity compensation were transportation accidents other than motor vehicle, contacts with radiation or caustics by inhalation, caught in, under, or between collapsing material, and contact with electric current. Specified types with highest average medical payments were transportation accidents other than motor vehicle, explosions, and contact with electric current.

Type of Accident or Exposure[a]	Per Cent of Total Cases Closed	Average Indemnity Compensation[b]	Average Medical Payment[b]
Total	**100.0%**	**$4,035**	**$2,012**
Overexertion	32.7	4,119	1,910
Lifting objects	*15.1*	*4,209*	*1,984*
Wielding, throwing, holding, carrying objects	*7.8*	*4,653*	*1,714*
Pulling or pushing objects	*3.9*	*4,074*	*1,956*
Struck by object	16.6	3,203	1,670
Falling object	*5.9*	*3,166*	*1,695*
Flying object	*0.8*	*5,448*	*2,767*
Fall on same level	10.8	4,777	2,212
Fall onto or against objects	*1.8*	*4,022*	*1,967*
Fall from elevation	8.2	5,991	2,637
From vehicles	*1.8*	*5,392*	*2,325*
On stairs	*1.7*	*5,149*	*1,980*
From ladders	*1.5*	*6,439*	*2,489*
From scaffolds, etc.	*0.6*	*8,058*	*4,288*
Into shafts, etc.	*0.4*	*6,108*	*2,345*
From piled materials	*0.1*	*3,438*	*2,425*
Struck against object	8.0	2,193	1,393
Stationary object	*6.2*	*2,177*	*1,211*
Moving object	*1.5*	*2,396*	*1,819*
Bodily reaction	7.2	3,301	1,821
Caught in, under, between	5.3	3,279	2,013
Moving and stationary object	*1.3*	*3,071*	*1,669*
Inrunning or meshing objects	*0.9*	*3,983*	*2,594*
Collapsing materials	*0.1*	*13,462*	*3,871*
Two or more moving objects	*0.1*	*3,946*	*4,103*
Highway motor-vehicle accidents	2.7	8,406	3,927
Both vehicles in motion	*0.9*	*7,715*	*3,553*
Noncollision accidents	*0.9*	*9,242*	*3,897*
Standing vehicle or stationary object	*0.4*	*8,007*	*3,437*
Nonhighway motor-vehicle accidents	0.3	4,798	3,235
Contact with temperature extremes	1.7	1,782	2,101
Hot objects	*1.7*	*1,628*	*2,173*
Cold objects	([c])	*1,452*	*155*
Contact with radiations, caustics, etc.	1.6	5,996	1,668
By absorption	*0.8*	*2,286*	*942*
By inhalation	*0.5*	*14,562*	*3,328*
By ingestion	*0.1*	*2,390*	*601*
Exposure to noise	1.0	3,160	546
Rubbed or abraded	0.8	1,949	1,021
Foreign matter in eyes	*0.3*	*1,273*	*460*
Objects handled	*0.2*	*1,065*	*894*
Leaning, kneeling, etc.	*0.1*	*2,345*	*1,767*
Repetition of pressure	*0.1*	*4,191*	*1,914*
Explosions	0.2	6,381	7,375
Contact with electric current	0.2	10,384	5,067
Transportation accidents other than motor vehicle	([c])	18,569	7,784
Accident type, nec	0.2	18,216	3,734
Nonclassifiable	2.6	2,865	1,833

Source: Bureau of Labor Statistics Supplementary Data System, based on 353,449 closed cases from 9 states, 1985.

[a] Group totals contain some categories not listed separately.

[b] Cases in which no indemnity compensation or medical payment was awarded are excluded when computing averages. Overall average based on 345,613 indemnity compensation cases and 101,706 medical payment cases.

[c] Less than 0.05 per cent.

Workers' Compensation Cases

According to the Social Security Administration, $25,019 million was paid out under workers' compensation in 1986, an increase of 11 per cent from 1985. Of this total, $16,461 million was for income benefits and $8,558 was for medical costs.

Both income benefits and medical payments increased in 1986. Black lung payments decreased by about 1 per cent. The 1986 total of approximately 86 million workers covered by workers' compensation increased by about 1.7 million from 1985. About 87 per cent of all wage and salary workers were covered in 1986.

The table below shows the trend in the number of compensated or reported cases in each reporting state or province. Due to differences in population, industries, and coverage of compensation laws, comparison between states should not be made.

State or Province	Deaths			Total Cases			1986 Compensation Paid ($ 000)
	1988	1987	1986	1988	1987	1986	
Alabama[a]	74	115	99	41,064	40,901	37,137	243,933
Alaska[a]	...	26	21	...	8,930	9,713	129,417
Arizona[b]	...	...	99	...	...	136,050	205,818
Arkansas[a]	109	96	80	23,536	20,697	14,641	154,441
California[b]	...	...	407	...	...	...	3,744,658
Connecticut[b]	58	109	78	51,032	42,289	39,151	347,334
Florida[a]	...	136	100	...	...	...	927,819
Georgia[b]	226	297	273	306,672	294,225	269,347	427,056
Hawaii[a]	...	271	233	...	56,635	49,306	135,218
Idaho[b]	30	43	43	38,049	35,164	38,023	66,521
Indiana[b]	105	114	97	74,338	70,647	56,869	174,151
Iowa[b]	...	89	95	...	28,930	28,319	131,165
Kansas[b]	70	69	96	69,933	67,386	66,767	156,686
Kentucky[b]	104	136	128	41,119	39,463	38,070	244,661
Maryland[a]	103	74	72	18,716	16,530	16,142	327,768
Michigan[b]	65	73	74	64,111	64,745	61,422	829,206
Minnesota[b]	157	167	148	51,814	47,509	49,351	438,473
Mississippi[a]	...	...	53[c]	...	...	8,654[c]	121,998
Missouri[b]	...	129	119	...	171,457	162,057	270,434
Montana[b]	38	38	36	25,613	25,060	28,579	122,977
Nebraska[b]	66	45	55	65,158	58,401	56,658	76,199
Nevada[a]	36	29	12	81,957	73,415	67,270	148,675
New Hampshire[b]	...	32	25	...	71,634	62,366	107,761
New Jersey[b]	...	...	80	...	...	243,103	547,035
New York[b]	829	858	775	553,484	548,329	598,668	1,097,946
North Carolina[b]	180	168	134	73,020	68,107	67,339	263,005
North Dakota[a]	...	...	19	...	...	20,967	37,536
Ohio[b]	...	230	227	...	138,761	123,841	1,637,117
Oregon[a]	...	78	84	...	39,554	38,745	451,637
Pennsylvania[b]	267	291	265	146,461	139,706	138,168	1,133,376
South Dakota[b]	...	25	15	...	21,527	19,123	28,392
Virginia[a]	77	51	75	46,522	43,575	43,691	305,461
Washington[a]	...	...	99	...	...	221,407	819,058
Alberta[a]	...	101[c]	132	...	58,159[c]	57,292	...
British Columbia[a]	...	140[c]	120	...	126,479[c]	120,696	...
Manitoba[a]	...	27[c]	35	...	40,204[c]	40,919	...
New Brunswick[a]	...	19[c]	17	...	25,590[c]	23,622	...
Newfoundland[a]	...	21[c]	20	...	17,377[c]	18,244	...
Northwest Territories[a]	...	7[c]	5	...	3,063[c]	3,186	...
Nova Scotia[a]	...	7[c]	23	...	26,688[c]	31,938	...
Ontario[a]	...	230[c]	208	...	430,984[c]	413,616	...
Prince Edward Island[a]	...	3[c]	1	...	3,860[c]	3,619	...
Quebec[a]	...	163[c]	171	...	264,052[c]	322,224	...
Saskatchewan[a]	...	27[c]	29	...	36,785[c]	37,034	...
Yukon[a]	...	2[c]	1	...	1,661[c]	1,420	...

Source: Deaths and cases—State and provincial workers' compensation authorities for calendar or fiscal year. Costs—*Social Security Bulletin*, 1989, *52* (3), 34-41. States not listed did not respond to survey.

[a] Compensated cases. A compensated case is one determined to be work related and for which compensation was paid.

[b] Reported cases. A reported case may not be work related and may not receive compensation.

[c] Preliminary.

OSHA occupational injuries and illnesses

The tables below and on pages 42 and 43 are from the 1987 survey of occupational injuries and illnesses conducted by the Bureau of Labor Statistics, U.S. Department of Labor. These figures are *not comparable* to the National Health Interview Survey data on page 5 due to differences in definitions nor to National Safety Council estimates on pages 2, 32, 36 and 37 due to differences in definitions and employment coverage (OSHA excludes unpaid family workers, some self-employed, and farms with less than 11 employees).

OSHA incidence rates are based on cases per 100 worker years using 200,000 employee hours as the equivalent. Other definitions (see below) affect which cases are counted and how they are classified.

BLS Estimates of Occupational Injury and Illness Incidence Rates by Industry Division, 1986–1987

Industry Division	Incidence Rates[c]					
	Total Cases[d]		Lost Workday Cases		Nonfatal Cases Without Lost Workdays	
	1987	1986	1987	1986	1987	1986
Private Sector[e]	**8.3**	**7.9**	**3.8**	**3.6**	**4.4**	**4.3**
Agriculture, forestry, and fishing[e]	11.2	11.2	5.7	5.6	5.5	5.6
Mining	8.5	7.4	4.9	4.1	3.6	3.2
Construction	14.7	15.2	6.8	6.9	7.9	8.3
Manufacturing	11.9	10.6	5.3	4.7	6.7	5.9
Transportation and public utilities	8.4	8.2	4.9	4.8	3.5	3.4
Wholesale and retail trade	7.7	7.7	3.4	3.3	4.3	4.3
Finance, insurance, and real estate	2.0	2.0	0.9	0.9	1.1	1.1
Services	5.5	5.3	2.7	2.5	2.8	2.7

See source and footnotes below.

OSHA Definitions (See OSHA form No. 200 and Recordkeeping Requirements, Revised 1978):

Occupational injury is any injury such as a cut, fracture, sprain, amputatio~~n, etc., which results~~ from a work accident or from an exposure involving a single incident in the work environment.

Occupational illness of an employee is any abnormal condition or disorder, other than one resulting from an occupational injury caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact.

Lost workdays are those days which the employee would have worked but could not because of occupational injury or illness. The number of lost workdays should not include the day of injury or onset of illness. The number of days includes all days (consecutive or not) on which, because of injury or illness, (1) the employee would have worked but could not or (2) the employee was assigned to a temporary job, or (3) the employee worked at a permanent job less than full time, or (4) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

Recordable cases are those involving an occupational injury or occupational illness, including deaths. *Not* recordable are first aid cases which involve one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, etc., which do not ordinarily require medical care, even though such treatment is provided by a physician or registered professional personnel.

Nonfatal cases without lost workdays are cases of occupational injury or illness which did not involve fatalities or lost workdays but did result in: (1) transfer to another job or termination of employment, or (2) medical treatment, other than first aid, or (3) diagnosis of occupational illness, or (4) loss of consciousness.

Source and footnotes for table above and on pages 42 and 43.

Source: Bureau of Labor Statistics, U.S. Department of Labor, survey involving a nationwide sample of approximately 280,000 units.

[a] Industry division 2 and 3 digit SIC code totals include data for industries not shown separately.

[b] Standard Industrial Classification Manual, 1972 Edition, 1977 Supplement.

[c] $$\text{Incidence Rate} = \frac{(\text{No. of injuries \& illnesses} \times 200{,}000)\ \textbf{OR}\ (\text{No. of lost workdays} \times 200{,}000)}{\text{Total hours worked by all employees during period covered}}$$

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[d] Includes fatalities. Because of rounding, the difference between the total and sum of the rates for lost workday cases and nonfatal cases without lost workdays may not reflect the fatality rate.

[e] Excludes farms with less than 11 employees.

BLS Estimates of Occupational Injury and Illness Incidence Rates for Selected Industries, 1987

Industry	SIC Code	Incidence Rates			
		Total Cases	Lost Workday Cases	Nonfatal Cases Without Lost Workdays	Lost Workdays
Private Sector		**8.3**	**3.8**	**4.4**	**69.9**
Agriculture, forestry and fishing		**11.2**	**5.7**	**5.5**	**94.1**
Agricultural production	01,02	12.6	6.3	6.3	105.5
Agricultural services	07	9.9	5.1	4.8	79.9
Forestry	08	11.9	6.1	5.8	115.1
Mining		**8.5**	**4.9**	**3.6**	**144.0**
Metal mining	10	7.8	4.4	3.3	123.0
Anthracite mining	11	9.7	7.5	2.2	290.5
Bituminous coal and lignite mining	12	11.6	8.1	3.4	228.3
Oil and gas extraction	13	8.3	4.1	4.2	139.6
Oil and gas field services	138	14.0	7.2	6.8	257.8
Nonmetallic minerals, except fuels	14	5.9	3.6	2.3	67.8
Construction		**14.7**	**6.8**	**7.9**	**135.8**
General building contractors	15	14.2	6.5	7.7	134.0
Heavy construction contractors	16	14.5	6.4	8.1	139.1
Special trade contractors	17	15.0	7.1	7.9	135.7
Manufacturing		**11.9**	**5.3**	**6.7**	**95.5**
Durable goods		12.5	5.4	7.1	96.8
Lumber and wood products	24	18.9	9.6	9.3	176.5
Logging camps and logging contractors	241	19.3	12.4	6.6	332.8
Sawmills and planing mills	242	17.9	9.4	8.5	178.3
Millwork, plywood and structural members	243	18.0	8.7	9.3	147.5
Furniture and fixtures	25	15.4	6.7	8.7	103.6
Household furniture	251	14.5	6.1	8.4	87.5
Stone, clay, and glass products	32	14.9	7.1	7.8	135.8
Concrete, gypsum, and plaster products	327	16.5	8.2	8.3	158.3
Miscellaneous nonmetallic mineral products	329	11.7	6.0	5.7	109.6
Primary metal industries	33	17.0	7.4	9.6	145.8
Blast furnace and basic steel products	331	16.2	6.5	9.7	159.2
Iron and steel foundries	332	21.5	9.6	11.9	153.6
Primary nonferrous metals	333	22.5	7.7	14.7	158.8
Nonferrous rolling and drawing	335	12.6	5.8	6.8	111.2
Fabricated metal products	34	17.0	7.2	9.8	121.9
Cutlery, hand tools, and hardware	342	13.5	5.8	7.7	102.2
Fabricated structural metal products	344	19.7	8.4	11.3	135.3
Metal forgings and stampings	346	18.4	7.5	10.9	140.4
Miscellaneous fabricated metal products	349	15.4	6.9	8.6	120.9
Machinery, except electrical	35	11.3	4.4	6.9	72.7
Farm and garden machinery	352	15.6	6.2	9.4	93.8
Construction and related machinery	353	15.2	6.1	9.1	100.4
Metalworking machinery	354	12.1	4.0	8.0	65.3
Special industry machinery	355	13.2	4.7	8.5	77.1
General industrial machinery	356	12.7	4.9	7.8	81.8
Office and computing machines	357	3.7	1.9	1.9	36.6
Refrigeration and service machinery	358	16.3	6.2	10.1	105.9
Miscellaneous machinery, except electrical	359	12.9	5.1	7.9	79.3
Electric and electronic equipment	36	7.2	3.1	4.1	55.9
Electric distributing equipment	361	9.8	4.2	5.6	67.1
Electric industrial apparatus	362	9.2	4.0	5.2	82.3
Household appliances	363	15.3	6.1	9.2	97.1
Electric lighting and wiring equipment	364	9.6	4.2	5.3	81.4
Communication equipment	366	4.0	1.7	2.3	32.3
Electronic components and accessories	367	6.1	2.5	3.6	43.0
Miscellaneous electrical equipment and supplies	369	9.9	4.9	5.0	100.8
Transportation equipment	37	13.5	5.7	7.8	105.7
Motor vehicles and equipment	371	15.2	6.6	8.5	118.2
Aircraft and parts	372	8.3	3.1	5.2	55.7
Ship and boat building and repairing	373	34.3	14.7	19.6	317.9
Railroad equipment	374	19.8	8.4	11.4	178.6
Guided missiles, space vehicles, parts	376	4.4	2.0	2.4	34.0
Instruments and related products	38	5.8	2.4	3.3	43.9
Measuring and controlling devices	382	5.4	2.3	3.1	40.5
Medical instruments and supplies	384	7.5	3.1	4.4	58.3
Photographic equipment and supplies	386	4.7	1.9	2.8	35.0
Miscellaneous manufacturing industries	39	10.7	4.6	6.1	81.5
Miscellaneous manufactures	399	11.5	4.8	6.8	82.3
Nondurable goods		*11.1*	*5.1*	*6.0*	93.5
Food and kindred products	20	17.7	8.6	9.1	153.7
Meat products	201	26.7	12.3	14.5	226.9
Dairy products	202	15.7	7.9	7.8	144.5
Preserved fruits and vegetables	203	15.0	6.8	8.3	116.5

See source and footnotes on page 41.

BLS Estimates of Occupational Injury and Illness Incidence Rates for Selected Industries, 1987, Cont.

Industry[a]	SIC Code[b]	Incidence Rates[c]			
		Total Cases[d]	Lost Workday Cases	Nonfatal Cases Without Lost Workdays	Lost Workdays
Grain mill products	204	12.6	6.1	6.4	129.3
Bakery products	205	13.3	7.4	5.9	146.3
Beverages	208	17.5	8.7	8.8	131.9
Miscellaneous foods and kindred products	209	15.1	7.7	7.4	128.2
Tobacco manufactures	21	8.6	2.5	6.2	46.4
Textile mill products	22	9.0	3.6	5.4	65.9
Knitting mills	225	7.7	3.6	4.1	58.5
Apparel and other textile products	23	7.4	3.1	4.3	59.5
Men's and boys' furnishings	232	9.3	4.2	5.0	85.0
Women's and misses' outerwear	233	4.4	1.7	2.7	35.1
Miscellaneous fabricated textile products	239	10.5	4.3	6.2	70.2
Paper and allied products	26	12.8	5.8	7.0	122.3
Paper mills, except building paper	262	12.7	4.8	7.9	132.6
Miscellaneous converted paper products	264	12.5	6.2	6.3	109.9
Paperboard containers and boxes	265	13.5	6.4	7.0	126.5
Printing and publishing	27	6.7	3.1	3.6	55.1
Newspapers	271	6.6	3.1	3.5	63.3
Commercial printing	275	8.0	3.7	4.4	58.7
Chemicals and allied products	28	7.0	3.1	3.9	58.8
Industrial inorganic chemicals	281	5.3	2.2	3.1	47.9
Plastics materials and synthetics	282	6.1	2.5	3.6	49.7
Drugs	283	5.7	2.7	3.0	44.2
Soap, cleaners, and toilet goods	284	8.5	3.9	4.7	66.6
Industrial organic chemicals	286	7.3	3.1	4.2	60.9
Agricultural chemicals	287	7.8	3.8	4.0	95.3
Petroleum and coal products	29	7.3	3.1	4.2	65.9
Petroleum refining	291	6.2	2.6	3.5	56.0
Rubber and miscellaneous plastics products	30	15.9	7.6	8.2	130.8
Miscellaneous plastics products	307	16.1	7.4	8.7	125.7
Leather and leather products	31	12.4	5.8	6.7	114.5
Transportation and public utilities		**8.4**	**4.9**	**3.5**	**108.1**
Railroad transportation	40	7.1	5.3	1.8	88.3
Local and interurban passenger transit	41	9.2	5.5	3.6	139.4
Local and suburban transportation	411	12.2	7.2	5.0	155.8
Trucking and warehousing	42	12.3	7.6	4.7	188.7
Trucking, local and long distance	421	12.3	7.7	4.6	195.6
Water transportation	44	12.9	7.5	5.4	284.3
Transportation by air	45	14.3	7.8	6.4	134.5
Transportation services	47	3.4	2.0	1.4	41.3
Communication	48	2.8	1.6	1.3	26.4
Electric, gas, and sanitary services	49	7.6	3.8	3.8	68.9
Electric services	491	6.2	2.7	3.4	44.8
Gas production and distribution	492	7.5	3.6	3.9	62.7
Wholesale and retail trade		**7.7**	**3.4**	**4.3**	**56.1**
Wholesale trade — durable goods	50	6.7	3.1	3.6	49.6
Wholesale trade — nondurable goods	51	8.5	4.7	3.8	85.2
Retail trade		*7.8*	*3.3*	*4.5*	*52.9*
Building materials and garden supplies	52	10.2	4.7	5.5	75.1
General merchandise stores	53	10.0	4.4	5.6	68.9
Food stores	54	10.9	4.7	6.3	88.3
Automotive dealers and service stations	55	6.8	2.7	4.1	45.7
Apparel and accessory stores	56	3.2	1.3	1.9	24.2
Furniture and home furnishing stores	57	4.6	2.3	2.3	38.7
Eating and drinking places	58	8.3	3.2	5.0	42.5
Miscellaneous retail	59	4.3	2.1	2.2	35.5
Finance, insurance, and real estate		**2.0**	**0.9**	**1.1**	**14.3**
Banking	60	1.4	0.6	0.9	6.5
Insurance carriers	63	1.8	0.8	1.0	17.1
Real estate	65	4.7	2.4	2.4	37.3
Services		**5.5**	**2.7**	**2.8**	**45.8**
Hotels and other lodging places	70	10.6	4.7	5.9	80.7
Personal services	72	3.1	1.6	1.6	27.5
Business services	73	4.6	2.3	2.3	38.0
Auto repair, services, and garages	75	6.7	3.1	3.6	52.6
Miscellaneous repair services	76	7.2	3.7	3.5	71.9
Motion pictures	78	2.8	1.1	1.7	16.1
Amusement and recreation services	79	8.7	4.1	4.6	64.4
Health services	80	7.2	3.7	3.5	66.7
Legal services	81	0.6	0.3	0.3	4.3
Educational services	82	3.3	1.4	1.9	22.5
Social services	83	5.9	2.9	3.0	44.4
Museums, botanical, zoological gardens	84	6.1	3.1	3.0	38.4
Miscellaneous services	89	1.6	0.6	0.9	11.3

See source and footnotes on page 41.

Occupational Injury and Illness Incidence Rates by Industry, 1987, Reporters to the National Safety Council

(Note: The 1987 incidence rates shown below are repeated from *Accident Facts*, 1988 Edition, because the 1988 rates were not available at press time. The 1988 rates may be found in *Work Injury and Illness Rates*, 1989 Edition.)

Industry	SIC Code[b]	Incidence Rates per 100 Full-Time Employees[a]					
		Total Cases	Lost Workday Cases	Cases Involving Days Away From Work & Deaths	Nonfatal Cases Without Lost Workdays	Lost Work-days[c]	Days Away From Work
All Industries[d]		**7.59**	**3.05**	**1.86**	**4.53**	**60**	**41**
Agriculture, forestry, & fishing		**11.83**	**5.84**	**4.19**	**5.97**	**121**	**102**
Agricultural production, crops	01	14.67	7.02	4.10	7.61	111	78
Forestry	08	4.05	1.84	1.84	2.21	58	56
Mining		**6.06**	**1.62**	**1.18**	**4.43**	**49**	**38**
Metal mining	10	11.25	2.46	1.96	8.76	87	68
Bituminous coal & lignite mining	12	11.32	2.71	2.52	8.61	120	90
Oil & gas extraction	13	3.30	1.07	0.63	2.22	20	15
Nonmetallic minerals, except fuels	14	5.99	1.81	1.25	4.17	56	46
Construction		**8.02**	**3.42**	**2.93**	**4.59**	**71**	**63**
General building contractors	15	8.64	3.22	2.71	5.40	89	80
Heavy construction contractors	16	7.59	3.33	2.82	4.25	65	57
Special trade contractors	17	14.83	6.11	6.07	8.69	127	123
Manufacturing		**8.05**	**3.00**	**1.59**	**5.05**	**58**	**37**
Durable goods		*9.52*	*3.51*	*1.78*	*6.01*	*67*	*42*
Lumber and wood products	24	10.11	5.14	4.18	4.95	120	98
Sawmills and planing mills	242	12.27	6.29	5.02	5.98	128	105
Millwork, plywood, and structural members	243	8.88	4.67	3.68	4.18	114	87
Furniture and fixtures	25	13.80	6.07	1.76	7.72	124	32
Household furniture	251	10.36	2.96	1.89	7.40	40	32
Stone, clay, and glass products	32	11.55	4.76	2.54	6.79	102	78
Cement, hydraulic	324	13.47	3.06	2.40	10.41	100	76
Concrete, gypsum, and plaster products	327	8.18	2.48	2.27	5.70	52	48
Miscellaneous nonmetallic mineral products	329	8.05	3.78	3.06	4.26	85	77
Primary metal industries	33	12.42	3.59	1.79	8.82	79	52
Blast furnace and basic steel products	331	10.90	3.00	2.22	7.89	90	77
Iron and steel foundries	332	20.45	5.06	1.66	15.38	90	46
Primary nonferrous metals	333	14.18	4.64	1.92	9.53	90	51
Nonferrous rolling and drawing	335	9.01	3.07	1.32	5.93	59	30
Fabricated metal products	34	11.15	3.87	1.89	7.28	68	40
Metal cans and shipping containers	341	12.23	3.51	1.32	8.71	56	30
Cutlery, hand tools, and hardware	342	10.71	3.16	2.56	7.55	81	54
Fabricated structural metal products	344	7.82	2.51	2.03	5.30	56	51
Metal forgings and stampings	346	21.82	7.32	1.66	14.49	103	30
Miscellaneous fabricated metal products	349	8.27	3.09	2.32	5.18	63	54
Machinery, except electrical	35	8.59	3.11	1.74	5.48	57	34
Farm and garden machinery	352	9.44	4.02	0.56	5.43	53	10
Construction and related machinery	353	9.59	3.33	2.09	6.26	72	46
Metalworking machinery	354	11.52	5.32	3.08	6.21	73	57
Special industry machinery	355	7.90	2.50	1.90	5.40	59	52
General industrial machinery	356	8.01	2.95	2.50	5.06	49	40
Office and computing machines	357	1.86	0.87	0.58	1.00	16	6
Refrigeration and service machinery	358	15.50	4.57	2.43	10.93	84	45
Miscellaneous machinery, except electrical	359	11.21	4.43	0.86	6.78	98	35
Electric and electronic equipment	36	4.68	1.86	1.12	2.83	38	23
Electric distributing equipment	361	13.00	5.80	3.02	7.21	96	57
Electric industrial apparatus	362	6.92	2.67	1.43	4.24	60	37
Household appliances	363	8.75	2.52	2.05	6.23	55	46
Electric lighting and wiring equipment	364	8.07	3.77	1.67	4.29	79	36
Communication equipment	366	3.13	1.01	0.64	2.12	19	12
Electronic components and accessories	367	4.81	1.50	0.73	3.30	28	13
Miscellaneous electrical equipment and supplies	369	7.58	4.36	3.72	3.21	81	68
Transportation equipment	37	11.07	4.22	1.80	6.84	69	43
Motor vehicles and equipment	371	21.46	8.15	2.90	13.31	134	77
Aircraft and parts	372	5.47	1.78	1.42	3.70	29	24
Ship and boat building and repair	373	18.13	7.80	4.20	10.33	118	76
Railroad equipment	374	13.33	4.79	4.74	8.55	122	120
Guided missiles, space vehicles, and parts	376	2.41	0.86	0.35	1.54	12	6
Instruments and related products	38	4.36	1.49	0.94	2.87	30	22
Measuring and controlling devices	382	6.85	2.59	1.97	4.27	46	37
Medical instruments and supplies	384	4.40	1.68	0.96	2.70	39	28
Miscellaneous manufacturing industries	39	9.12	4.90	3.92	4.21	104	82
Nondurable goods		*6.64*	*2.50*	*1.40*	*4.13*	*50*	32
Food and kindred products	20	11.18	4.54	3.10	6.64	91	66
Meat products	201	25.01	9.21	4.18	15.80	158	84
Dairy products	202	7.12	2.89	2.17	4.23	59	44
Preserved fruits and vegetables	203	11.10	3.72	2.13	7.38	83	52

See source and footnotes on page 45

Occupational Injury and Illness Incidence Rates by Industry, 1987, Reporters to the National Safety Council, Cont.

Industry	SIC Code[b]	Incidence Rates per 100 Full-Time Employees[a]					
		Total Cases	Lost Workday Cases	Cases Involving Days Away From Work & Deaths	Nonfatal Cases Without Lost Workdays	Lost Work-days[c]	Days Away From Work
Grain mill products	204	9.39	2.66	2.48	6.72	50	42
Bakery products	205	8.15	4.90	4.66	3.25	115	110
Beverages	208	7.31	2.75	2.17	4.55	62	45
Miscellaneous foods and kindred products	209	7.93	3.15	2.37	4.78	80	68
Textile mill products	22	5.56	1.52	0.48	4.04	27	14
Weaving mills, cotton	221	6.57	1.69	0.44	4.87	28	16
Knitting mills	225	8.19	1.87	0.81	6.32	38	24
Apparel and other textile products	23	6.76	3.17	0.95	3.59	52	28
Miscellaneous fabricated textile products	239	6.97	2.48	1.20	4.49	55	36
Paper and allied products	26	9.38	3.10	2.20	6.28	75	58
Paper mills, except building paper	262	9.88	2.83	1.93	7.04	73	58
Miscellaneous converted paper products	264	6.74	2.89	1.94	3.84	58	42
Paperboard containers and boxes	265	11.05	5.11	4.00	5.92	119	97
Printing and publishing	27	6.78	3.37	2.21	3.41	60	38
Newspapers	271	6.90	3.76	3.53	3.13	68	61
Commercial printing	275	9.13	3.73	2.00	5.40	53	28
Chemicals and allied products	28	4.12	1.58	0.62	2.54	29	14
Industrial inorganic chemicals	281	5.50	1.98	1.07	3.51	39	28
Plastics materials and synthetics	282	3.87	1.42	0.43	2.45	25	12
Drugs	283	3.10	1.36	0.71	1.74	23	12
Soap, cleaners, and toilet goods	284	3.98	1.90	1.23	2.08	32	23
Paints and allied products	285	5.86	2.49	0.66	3.36	39	15
Industrial organic chemicals	286	3.97	1.45	0.44	2.51	26	10
Agricultural chemicals	287	4.75	1.48	0.70	3.27	33	17
Miscellaneous chemical products	289	4.61	2.05	0.91	2.56	40	23
Petroleum and coal products	29	6.50	2.49	1.27	4.01	49	30
Petroleum refining	291	6.64	2.57	1.12	4.06	49	27
Paving and roofing materials	295	6.51	2.52	2.25	3.99	58	51
Rubber and miscellaneous plastics products	30	6.60	3.05	1.77	3.55	66	41
Miscellaneous plastics products	307	7.47	3.34	2.02	4.13	78	51
Leather and leather products	31	9.72	4.23	2.29	5.49	68	40
Transportation & public utilities		**6.28**	**3.46**	**2.45**	**2.81**	**67**	**48**
Railroad transportation	40	7.47	5.45	3.56	2.01	157	113
Local and interurban passenger transit	41	15.28	8.37	8.35	6.91	259	258
Local and suburban transportation	411	15.60	8.94	8.93	6.66	145	145
Trucking and warehousing	42	20.76	15.94	15.60	4.82	226	220
Trucking, local and long distance	421[e]	22.30	17.57	17.55	4.73	247	246
Water transportation	44	6.56	3.66	3.47	2.88	100	91
Transportation by air	45	4.94	2.75	2.21	2.19	33	27
Pipelines, except natural gas	46	4.28	1.31	1.14	2.97	26	21
Communication	48	2.11	0.80	0.72	1.32	17	13
Electric, gas, and sanitary services	49	5.39	2.63	1.52	2.75	51	31
Electric services	491	4.49	2.08	1.07	2.41	43	24
Gas production and distribution	492	6.94	3.51	2.58	3.43	63	45
Water supply	494	13.07	6.20	5.94	6.86	119	109
Wholesale & retail trade		**5.38**	**2.45**	**1.85**	**2.93**	**51**	**38**
Wholesale trade—durable goods	50	8.77	3.79	2.76	4.98	80	57
Wholesale trade—nondurable goods	51	2.82	1.64	1.52	1.17	26	24
Retail trade		**3.66**	**1.57**	**1.07**	**2.09**	**39**	**28**
Automotive dealers and service stations	55	3.66	1.51	1.08	2.14	35	30
Services		**5.09**	**2.19**	**2.03**	**2.90**	**35**	**28**
Business services	73	1.32	0.58	0.46	0.74	9	7
Amusement and recreation services	79	13.92	5.83	4.53	8.09	114	102
Hospitals	806	9.06	3.97	3.75	5.09	60	50
Educational services	82	4.13	2.30	2.30	1.82	37	35
Public administration (government)		**13.81**	**4.35**	**3.83**	**9.46**	**103**	**89**
Executive, legislative, and general	91	16.33	4.72	4.26	11.61	125	113
Police protection	9221	8.90	2.51	2.37	6.37	32	31
Fire protection	9224	14.59	6.61	5.36	7.98	63	56
State departments of transportation		9.37	4.30	4.30	5.06	57	57
Offices		2.23	0.96	0.43	1.27	15	12
Research and development or laboratory		2.43	0.77	0.40	1.65	14	7

Source: Based on reports of National Safety Council members participating in the *Occupational Safety/Health Award Program*. These rates should not be interpreted as representative of the industries listed or of Council member companies. A more complete list of industries may be found in *Work Injury and Illness Rates*, 1988 Ed.

[a] Based on OSHA definitions, see page 41. 200,000 employee hours used as the equivalent of 100 full-time employees.

[b] *Standard Industrial Classification (SIC) Manual*, 1972 Edition.

[c] Lost workdays include both days away from work and days of restricted work activity.

[d] Totals for division and 2 and 3 digit SIC codes include data for 4 digit codes not shown separately. Rates for each industry may not be comparable to the previous year due to changes in numbers of reporters.

[e] Excludes refuse collection without disposal.

OCCUPATIONAL HEALTH

Over 190,000 occupational illnesses were recognized or diagnosed in 1987 according to the Bureau of Labor Statistics (BLS). Disorders associated with repeated trauma were the most common illness with 72,900 cases, followed by skin diseases and disorders (54,200), and respiratory conditions due to toxic agents (14,300).

The overall incidence rate of occupational illness for all workers was 26.1 per 10,000 full-time workers. Of the major industry divisions, manufacturing had the highest rate in 1987, 67.6 per 10,000 full-time workers. Workers in manufacturing also had the highest rates for disorders associated with repeated trauma and disorders due to physical agents. Agriculture had the second highest incidence rate, 51.7, although agriculture workers had the highest incidence of all the industry divisions for skin diseases, respiratory conditions due to toxic agents and poisoning.

The table below shows the number of occupational illnesses and the incidence rate per 10,000 full-time workers as measured by the 1987 BLS survey. To convert these to incidence rates per 100 full-time workers, which are comparable to other published BLS rates, divide the rates in the table by 100. The BLS survey records illnesses only for the year in which they are recognized or diagnosed as work-related. Since only recognized cases are included, the figures underestimate the incidence of occupational illness.

Number of Occupational Illnesses and Incidence Rates by Industry and Type of Illness, 1987

Occupational Illness	Private Sector[a]	Agriculture[a,b]	Mining[b]	Construction	Manufacturing	Trans. and Pub. Util.	Trade[b]	Finance[b]	Services
				NUMBER OF ILLNESSES (in thousands)					
All Illnesses	**190.2**	**4.6**	**2.2**	**7.0**	**125.2**	**6.7**	**14.3**	**3.1**	**27.1**
Disorders associated with repeated trauma	72.9	0.2	0.6	0.4	65.7	1.5	2.1	0.5	2.0
Skin diseases, disorders	54.2	2.7	0.2	3.2	30.4	2.2	4.9	0.8	9.9
Respiratory conditions due to toxic agents	14.3	0.7	(c)	0.7	7.5	0.9	1.7	0.4	2.4
Disorders due to physical agents	13.8	0.2	0.1	0.7	9.2	0.4	1.2	(d)	1.9
Poisoning	4.8	0.3	(d)	0.4	2.4	0.2	(d)	0.1	0.7
Dust diseases of the lungs	3.4	(c)	0.9	0.5	1.2	0.2	(d)	(c)	0.4
All other occupational diseases	26.8	0.5	0.2	1.2	8.8	1.4	3.7	1.2	9.8
				INCIDENCE RATE per 10,000 Full-Time Workers					
All Illnesses	**26.1**	**51.7**	**30.1**	**16.2**	**67.6**	**13.2**	**7.5**	**5.3**	**14.7**
Disorders associated with repeated trauma	10.0	2.3	7.8	1.0	35.5	2.9	1.1	0.8	1.1
Skin diseases, disorders	7.4	30.0	2.8	7.3	16.4	4.3	2.5	1.4	5.4
Respiratory conditions due to toxic agents	2.0	7.9	0.6	1.6	4.0	1.7	0.9	0.7	1.3
Disorders due to physical agents	1.9	2.3	1.6	1.5	5.0	0.8	0.6	(d)	1.1
Poisoning	0.7	2.9	(d)	0.9	1.3	0.4	(d)	0.1	0.4
Dust diseases of the lungs	0.5	0.5	12.9	1.2	0.6	0.3	(d)	(e)	0.2
All other occupational diseases	3.7	5.8	2.7	2.7	4.8	2.7	1.9	2.1	5.3

Source: Bureau of Labor Statistics, U.S. Department of Labor. Components may not add to totals due to rounding.

[a] Excludes farms with less than 11 employees.

[b] Agriculture includes forestry and fishing; mining includes quarrying and oil and gas extraction; trade includes wholesale and retail; finance includes insurance and real estate.

[c] Fewer than 50 cases.

[d] Data not reported or do not meet publication guidelines.

[e] Less than 0.05.

Noise-induced hearing loss

Noise-induced hearing loss has been recognized by the National Institute for Occupational Safety and Health as one of the ten leading work-related diseases and injuries.[a] Recent estimates show that between 7 and 10 million persons work at sites where the noise level presents an increased risk of hearing loss. Of these workers exposed, about 1.6 million may have at least mild hearing loss, 1.1 million may have measurable hearing loss and 0.5 million may have moderate to severe hearing loss.

Self-reported hearing loss by workers generally varies by age, industry, and amount of exposure. In one study of white male workers in industries with less than 10 per cent of employees exposed to noise at 85 decibels (dBA) or higher, self-reported hearing loss varied from less than 2 per cent for workers 17 to 44 years of age to about 8 per cent for those 55 years and over. For those with heavy exposure (over 24 per cent exposed to 85 dBA or higher), hearing loss ranged from about 3 per cent for 17 to 44 year olds to more than 12 per cent for those 55 and over.

The table below shows by industry the percentage and estimated number of workers exposed to noise (85 dBA or higher) and estimated percentage of workers reporting some degree of hearing loss.

[a] *Morbidity and Mortality Weekly Report*, March 28, 1986, *35* (12), 185-188.

Estimated Percentage of Workers Exposed to Noise, and Prevalence of Self-Reported Hearing Loss, by Industry, 1970s

Industry	Estimated Percentage Exposure	Estimated Number Employed (000)	Estimated Number Exposed (000)	Estimated Percentage Self-Reported Hearing Loss
All Industries	**13.3**	**78,290**	**10,436.8**	**3.2**
Manufacturing:				
Food	32.7	1,765	577.2	3.5
Textiles	38.0	965	366.7	3.7
Apparel	19.3	1,448	279.5	1.8
Lumber and wood	54.2	688	372.9	7.4
Furniture	36.1	545	196.7	3.1
Printing	16.6	1,427	236.9	4.1
Chemicals	13.5	1,147	154.8	2.7
Stone, clay, glass	28.3	681	192.7	3.6
Primary metal	46.4	1,240	575.4	4.8
Fabricated metal	43.0	1,448	622.6	3.9
Machinery, excluding elec.	23.8	2,304	548.4	4.3
Electrical machinery	13.5	2,029	273.9	3.0
Transport equipment	37.1	2,545	944.2	4.3
Other	30.7	3,427	1,052.1	3.1
Trade:				
Wholesale	8.9	3,147	280.1	3.2
Retail—food	1.9	3,453	65.6	2.0
Retail—other	4.2	10,789	453.1	2.4
Services:				
Personal	2.6	1,526	39.7	2.9
Miscellaneous business	2.6	2,027	52.7	2.6
Repair	24.1	1,294	311.9	4.6
Amusement and recreation	5.2	965	50.2	1.5
Health	1.2	5,635	67.6	1.8
Education	1.2	7,144	85.7	2.5
Other	1.9	4,318	82.0	2.7
Other Industries:				
Forestry, fishing	9.5	132	12.5	3.3
Mining	38.0	728	276.6	4.7
Construction	29.1	5,636	1,640.1	4.9
Transport, excluding rail	12.9	2,628	399.0	2.9
Communications	2.2	1,282	28.2	1.7
Utilities	16.2	1,213	196.5	4.4
Finance, insurance	1.3	4,714	61.3	2.5

Source: *Morbidity and Mortality Weekly Report*, March 18, 1988, *37* (10), 158-167. Exposure percentages estimated using data from the National Occupational Hazard Survey, 1972-1974. Number employed and self-reported hearing loss estimated using data from the National Health Interview Survey, 1971 and 1977. Number exposed calculated by multiplying exposure percentage by number employed.

MOTOR-VEHICLE ACCIDENTS, 1988

Between 1912 and 1988, motor-vehicle deaths per 10,000 registered vehicles were reduced 91 per cent, from 33 to about 3. (Mileage data were not available in 1912.) In 1912, there were 3,100 fatalities when the number of registered vehicles totaled only 950,000. In 1988, there were 49,000 fatalities, but registrations soared to 188 million.

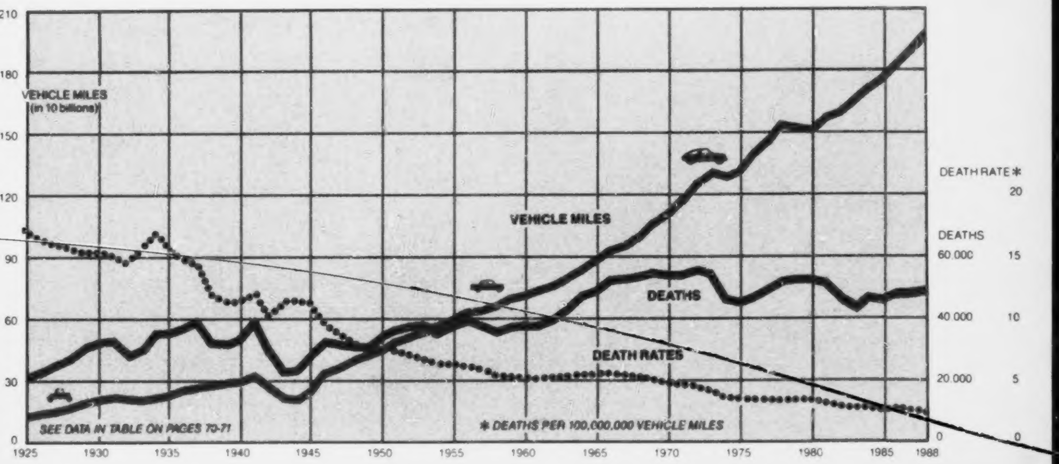
The 1988 mileage death rate was the lowest rate on record.

Deaths	**49,000**
Disabling injuries	**1,800,000**
Cost (see also pages 3 and 4)	**$70.2 billion**
Motor-vehicle mileage	**1,991 billion**
Death rate per 100,000,000 vehicle miles	**2.46**
Registered vehicles in the U.S.	**188,187,000**
Licensed drivers in the U.S.	**164,197,000**

Accident totals

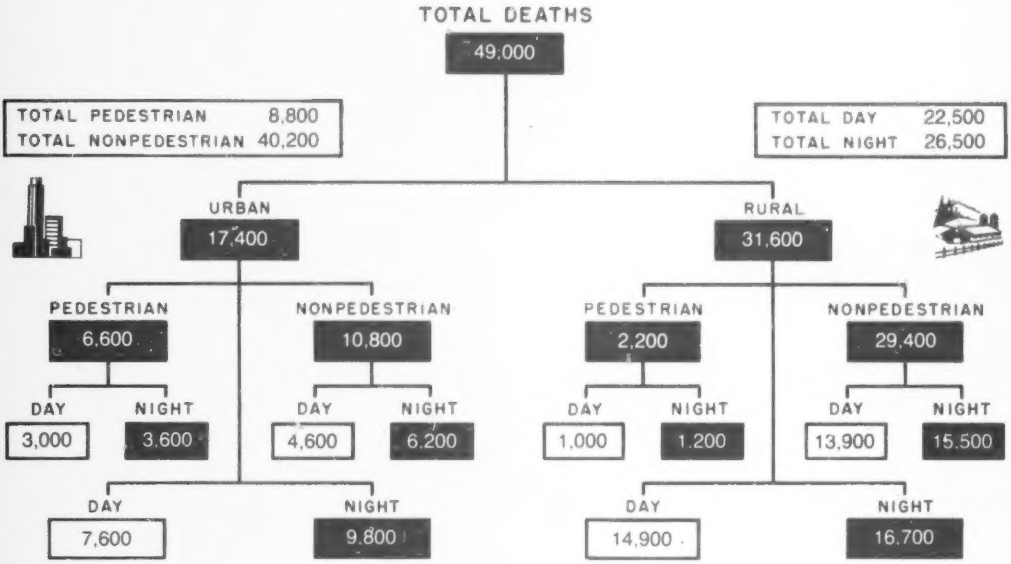
	Number of Accidents	Drivers (Vehicles) Involved
Fatal	43,400	64,000
Disabling injury	1,200,000	2,100,000
Property damage and nondisabling injury	19,400,000	34,000,000
Total (rounded)	20,600,000	36,200,000

Travel, deaths and death rates



Principal classes of motor-vehicle deaths

Almost two out of three deaths in 1988 occurred in places classified as rural. In urban areas, more than one third of the victims were pedestrians; in rural areas, the victims were mostly occupants of motor vehicles. More than one half of all deaths occurred in night accidents.

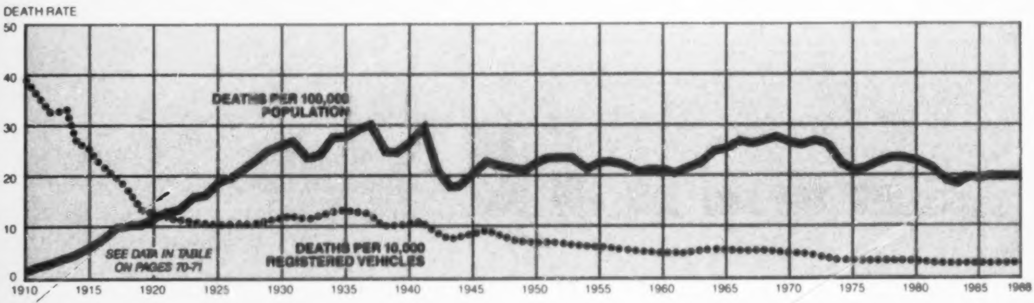

TOTAL DEATHS
49,000
TOTAL PEDESTRIAN 8,800
TOTAL NONPEDESTRIAN 40,200
TOTAL DAY 22,500
TOTAL NIGHT 26,500
URBAN
17,400
RURAL
31,600
PEDESTRIAN
6,600
NONPEDESTRIAN
10,800
PEDESTRIAN
2,200
NONPEDESTRIAN
29,400
DAY
3,000
NIGHT
3,600
DAY
4,600
NIGHT
6,200
DAY
1,000
NIGHT
1,200
DAY
13,900
NIGHT
15,500
DAY
7,600
NIGHT
9,800
DAY
14,900
NIGHT
16,700

Source: National Safety Council estimates

Trends in death rates

Motor-vehicle deaths increased 1 per cent in 1988 over 1987, mileage increased 3 per cent, the number of vehicles increased 2 per cent, and population increased 1 per cent. As a result of the smaller percentage increase in deaths than in vehicle registrations and mileage, the registration and mileage death rates decreased in 1988; the population death rate showed no change.

Comparing 1988 with 1987 death rates, the mileage rate per 100,000,000 vehicle miles decreased 2 per cent to 2.46 from 2.52 (see chart on page 48); the registration rate per 10,000 motor vehicles decreased 1 per cent to 2.60 from 2.63 (see chart below); the population rate per 100,000 persons showed no change from 19.9 (see chart below.) See also pages 70 and 71.



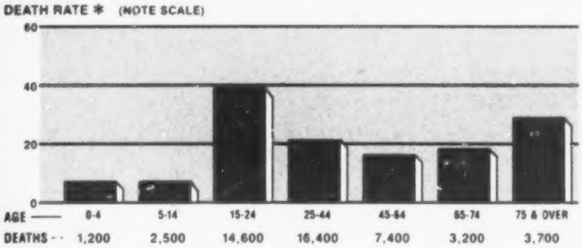
How people died in motor-vehicle accidents, 1988

Type of accident and age of victim

All motor-vehicle accidents

	Death Total	Change from 1987	Death Rate[a]
All motor-vehicle accidents	49,000	+1%	19.9
Urban	17,400	- 1%	
Rural	31,600	+ 2%	

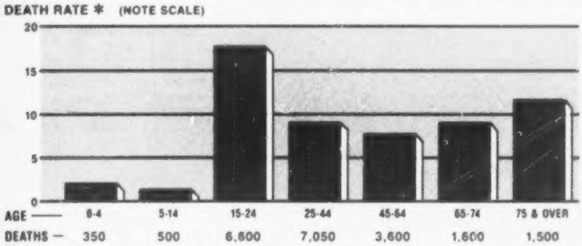
Includes deaths involving mechanically or electrically powered highway-transport vehicles in motion (except those on rails), both on and off the highway or street.



Collision between motor vehicles

Collision between motor vehicles	21,200	+1%	8.6
Urban	6,800	+ 3%	
Rural	14,400	+ 1%	

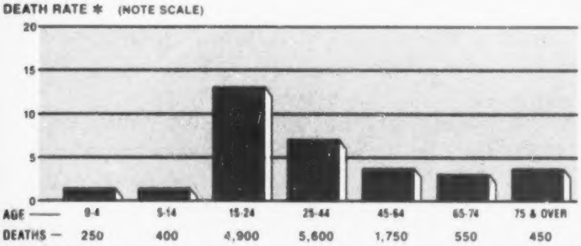
Includes deaths from collisions of two or more motor vehicles. Motorized bicycles and scooters, trolley buses, and farm tractors or road machinery traveling on highways are motor vehicles.



Noncollision accidents

Noncollision accidents	13,900	+2%	5.7
Urban	1,200	-20%	
Rural	12,700	+ 4%	

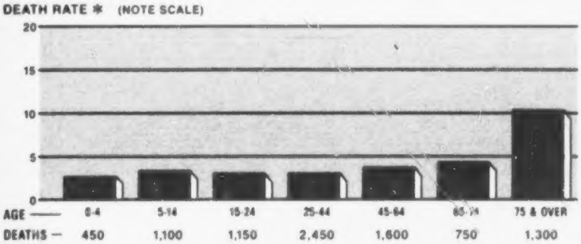
Includes deaths in all types of noncollision accidents. Classification is according to first injury or damage producing event.



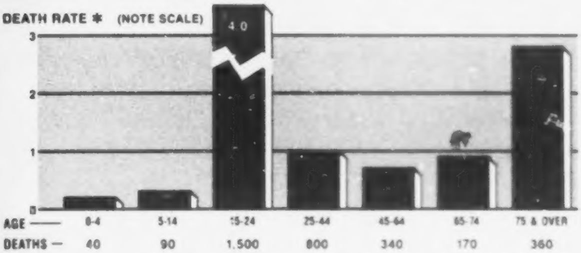
Pedestrian accidents

Pedestrian accidents	8,800	- 1%	3.6
Urban	6,600	- 4%	
Rural	2,200	+10%	

Includes all deaths of persons struck by motor vehicles, either on or off a street or highway, regardless of the circumstances of the accident.

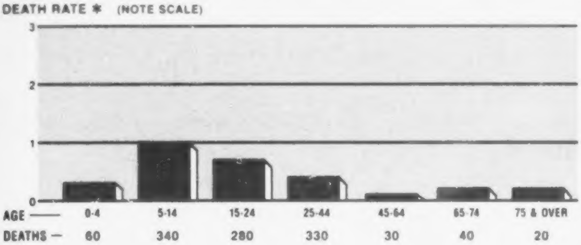


	Death Total	Change from 1987	Death Rate[a]
Collision with fixed object	3,300	+ 7%	1.3
Urban	2,100	+ 31%	
Rural	1,200	- 20%	



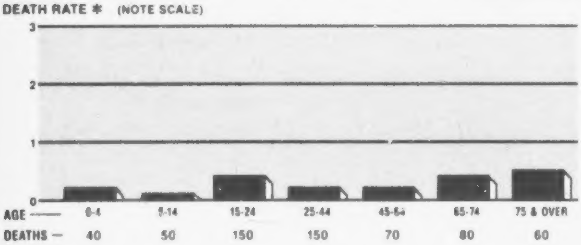
Includes deaths from collisions in which the first harmful event is the striking of a fixed object such as a guardrail, abutment, impact attenuator, etc.

Collision with pedalcycle	1,100	- 8%	0.4
Urban	600	- 25%	
Rural	500	+ 25%	



Includes deaths of pedalcyclists and motor-vehicle occupants from collisions between pedalcycles and motor vehicles on streets, highways, private driveways, parking lots, etc.

Collision with railroad train	600	+20%	0.2
Urban	100	0%	
Rural	500	+ 25%	



Includes deaths from collisions of motor vehicles (moving or stalled) and railroad vehicles at public or private grade crossings. In other types of accidents, classification requires motor vehicle to be in motion.

Other collision (animal, animal-drawn vehicles, street cars)	100	0%	(b)

Includes deaths from motor-vehicle collisions not specified in other categories above. Most of the deaths arose out of accidents involving animals or animal-drawn vehicles. Death from accidents involving street cars are not yet known for 1988.

*Deaths per 100,000 population in each age group.

[a] Deaths per 100,000 population.
[b] Death rate was less than 0.05.

Alcohol

Drinking is indicated to be a factor in 50 to 55 per cent of the fatal motor-vehicle accidents, according to special studies. According to 1986 data from the National Highway Traffic Safety Administration National Accident Sampling System, alcohol was reported as a factor in 7 per cent of the property damage accidents, and 29 per cent of the serious injury accidents. This means that in 1988 alcohol was a factor in at least 22,000 fatal accidents, about 350,000 injury accidents, and about 1,400,000 property damage accidents. The estimated cost of alcohol-related motor-vehicle accidents is about $16 billion.

Drinking and driving facts

Drinking and driving is one of the nation's most serious public health and safety problems. The following are estimates by the National Highway Traffic Safety Administration National Center for Statistics and Analysis of the extent of the problem:

- There is an average of one alcohol-related motor-vehicle fatality every 22 minutes and one alcohol-related injury every minute.
- Each year, at least 24,000 people are killed and about 534,000 are injured in alcohol-related motor-vehicle accidents.
- About two in every five Americans will be involved in an alcohol-related motor-vehicle accident at some time during their lifetime.
- Police report the presence of alcohol in 10 per cent of the approximately 6 million accident reports filed each year.
- Three times as many fatal alcohol-related motor-vehicle accidents occur at night compared to during the day.
- Single-vehicle accidents account for more than one half of all alcohol-related motor-vehicle fatalities.
- About two thirds of all people fatally injured in alcohol-related motor-vehicle accidents are drivers, pedestrians and pedalcyclists who had been drinking. One third are non-drinking drivers, non-occupants (pedestrians and pedalcyclists) and passengers.
- Motor vehicle accidents are the leading single cause of death for persons between the ages of five and 34. More than half of these fatalities are alcohol-related.
- More than 40 per cent of all deaths to persons 15 to 19 years of age are the result of motor-vehicle accidents. About half of these fatalities involved alcohol.
- An estimated 3,300 persons aged 15 to 19 are killed annually in alcohol-related motor-vehicle accidents.
- Of those killed, safety belts were used by about 8 per cent of the drivers who were drunk (Blood Alcohol Concentration (BAC) of .10 per cent or above), by 9 per cent of the drivers who had some alcohol involvement (BAC .01–.09), but more than 24 per cent of the non-drinking drivers were using safety belts.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration, National Center for Statistics and Analysis. *Drunk Driving Facts*. August 1988. Washington, DC. Author.

Minimum drinking age laws

A recent update of a 1985 study by the National Highway Traffic Safety Administration of the effectiveness of minimum drinking age laws based on 1975-1986 data from 13 states found an estimated 12 per cent reduction in fatal accident involvements among those drivers affected by raising the legal drinking age. The study estimated about 1,070 lives were saved in 1987 due to minimum drinking age laws.

Source: Van Dyke, J. and Womble, K. *The impact of minimum drinking age laws on fatal crash involvements: an update of the NHTSA analyses.* (DOT HS 807 349). Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. November 1988.

Occupant protection

According to National Highway Traffic Safety Administration studies, safety belts are 45 per cent effective in preventing fatalities, 50 per cent effective in preventing moderate to critical injuries, and 10 per cent effective in preventing minor injuries. As of June 8, 1989, thirty-two states and the District of Columbia have enacted mandatory safety belt use laws. All fifty states and the District of Columbia have mandatory child safety seat laws.

Usage. According to a 19-city observation survey by the National Highway Traffic Safety Administration, driver restraint use in the U.S. was estimated to be 43 per cent in June 1988, up from 42 per cent for the year 1987. For the 13 cities in states with laws, belt use was 48 per cent. For the 6 cities in states without laws, belt use was 31 per cent. As of August 1988, belt use in all states that had passed belt laws averaged about 50 per cent, with rates ranging from 65 per cent in North Carolina to 22 per cent in Utah. The wide variability was taken to reflect the differences in laws, enforcement, public information, and educational programs among states with belt laws.

Child safety seat usage in the 19-city study was estimated to be 80 per cent. However, a recent study by the National Highway Traffic Safety Administration[a] indicates that although some states report rates comparable to those of the 19-city study, many other states report use rates of less than 40 per cent. The study concluded that the use of child restraints in accidents is much lower than reported in observation studies and that most children in serious accidents remain unprotected.

Usage rates remain influenced by persistent myths involving the survival value of ejection and fears of entrapment. In refuting such notions, a recent study[b] found that the fatality rate for ejected occupants was 40 times that for non-ejected occupants and that there was no evidence that wearing a safety belt increased fatality risk from vehicle fire or submersion.

[a] Partyka, S. (1988, December). Lives saved by child restraints from 1982 through 1987. *Research Notes*. Washington, DC: National Center for Statistics and Analysis, NHTSA.

[b] O'Day, J. and Scott, R.E. (1984). Safety belt use, ejection and entrapment. *Health Education Quarterly, 11*(2), 141-146.

Effectiveness of mandatory belt use laws. A study by the National Highway Traffic Safety Administration[a] estimates that between 1983 and 1987, seat belts saved the lives of 10,938 travelers over four years old in the front seats of passenger vehicles. Belt use laws saved 6,907 or 63 per cent of these lives by increasing seat belt use over pre-law levels in states with belt laws and encouraging belt use in states without belt use laws. States with belt use laws experience, on average, 7 per cent fewer fatalities than would be expected without belt laws.

An evaluation of North Carolina's belt use law[b] found that during a fifteen month warning ticket phase following enactment of the law, driver belt use increased to an average of 45 per cent from a pre-law baseline of 25 per cent. During the $25 citation phase which followed, driver belt usage immediately hit a high of 78 per cent and leveled off at around 60 per cent nearly one and a half years later. Current statewide usage is estimated at 64 per cent. Casualty reductions from those forecast for covered occupants were consistent with the increases in observed belt usage during the citation phase, including an 11.6 per cent reduction in fatalities, a 14.6 per cent reduction in serious or fatal injuries, and an 11.6 per cent reduction in moderate or worse injuries. The reduction in fatalities represents a savings of 197 lives during the eighteen month period. Overall, an estimated 7,530 persons involved in crashes in North Carolina during the citation phase benefitted from the seat belt law in terms of reduced moderate or worse injuries.

[a] Partyka, S. (1988). *Lives saved by seat belts from 1983 through 1987* (Report No. DOT HS 807 324). Washington, DC: National Highway Traffic Safety Administration.

[b] Reinfurt, D.W., Campbell, B.J., Stewart, J.R. and Stutts, J.C. (1988). *North Carolina's occupant restraint law: A three year evaluation* (Report No. HSRC-PR158). Chapel Hill, NC: UNC Highway Safety Research Center.

Age of driver

Twenty-five per cent of the 164,200,000 licensed drivers in the nation in 1988 were in the 25 to 34 year age group and accounted for 27 per cent each of the drivers involved in fatal and all motor-vehicle accidents. The figures in the last two columns at the right indicate the frequency of accident involvement. The fatal accident involvement rates (per 100,000 drivers in each age group) ranged from a low of 24 for drivers 55 to 64 years of age to a high of 68 for drivers 20 to 24. The all accident involvement rates (per 100 drivers in each age group) ranged from a low of 13 for drivers 65 to 74 years of age to a high of 39 for drivers under 20 years of age.

Age of Drivers—Total Number and Number in Accidents, 1988

Age Group	All Drivers		Drivers in Accidents					
			Fatal		All		Per No. of Drivers	
	Number	%	Number	%	Number	%	Fatal[a]	All[b]
Total	**164,200,000**	**100.0%**	**64,000**	**100.0%**	**36,200,000**	**100.0%**	**39**	**22**
Under 20	14,000,000	8.5	8,700	13.6	5,500,000	15.2	62	39
20-24	16,500,000	10.1	11,200	17.5	6,100,000	16.9	68	37
25-34	40,200,000	24.5	17,200	26.9	9,900,000	27.3	43	25
35-44	34,300,000	20.9	10,500	16.4	6,200,000	17.1	31	18
45-54	24,300,000	14.8	6,300	9.8	3,400,000	9.4	26	14
55-64	18,400,000	11.2	4,400	6.9	2,500,000	6.9	24	14
65-74	12,700,000	7.7	3,200	5.0	1,700,000	4.7	25	13
75 and over	3,800,000	2.3	2,500	3.9	900,000	2.5	66	24

Source: Drivers in accidents based on reports from 9 state traffic authorities. Number of drivers by age are National Safety Council estimates based on reports from state traffic authorities and research groups.

[a] Drivers in Fatal Accidents per 100,000 drivers in each age group.

[b] Drivers in All Accidents per 100 drivers in each age group.

Sex of driver

Of the estimated 164,200,000 drivers in 1988, about 85,200,000 are males and 79,000,000 are females. Males are involved in more accidents than are females, as shown in the table below. The difference is due at least partly to differences in the amount of driving done by the members of each sex, and to differences in time, place, and circumstance of the driving.

Sex of Driver Involved in Accidents, 1974-1988

Year	Drivers in Fatal Accidents				Drivers in All Accidents			
	Male		Female		Male		Female	
	No.	Rate[a]	No.	Rate[a]	No.	Rate[b]	No.	Rate[b]
1974	48,000	55	9,800	24	17,800,000	205	7,300,000	177
1975	46,500	52	9,600	22	19,100,000	212	8,400,000	195
1976	48,100	51	10,900	24	19,600,000	206	8,800,000	191
1977	51,900	53	11,800	25	20,600,000	209	9,300,000	193
1978	51,500	50	15,500	30	21,700,000	209	9,800,000	192
1979	52,700	52	12,500	25	20,600,000	202	9,100,000	180
1980	56,100	56	12,200	24	20,100,000	200	9,700,000	192
1981	53,200	52	11,800	23	20,500,000	200	9,500,000	183
1982	48,800	47	11,500	22	20,600,000	198	9,900,000	186
1983	46,300	43	11,700	21	20,400,000	187	10,300,000	184
1984	47,600	42	13,300	23	21,800,000	192	11,200,000	190
1985	46,800	40	12,700	21	21,400,000	185	11,600,000	191
1986	46,400	41	13,100	18	22,100,000	196	12,900,000	177
1987	45,500	42	13,500	16	20,700,000	192	12,300,000	148
1988	49,200	45	14,800	17	22,500,000	204	13,700,000	155

Source: Accidents and Drivers—National Safety Council estimates based on reports from state motor-vehicle departments and Federal Highway Administration. Mileage—National Safety Council estimates.

[a] Number of drivers in fatal accidents per 1,000,000,000 miles driven.

[b] Number of drivers in all accidents per 10,000,000 miles driven.

Type of accident—urban and rural places

Motor-vehicle deaths occur more frequently in rural areas, but injuries occur more often in urban locations. With specific types of accidents, however, the urban-rural proportions vary considerably. For example, although about one third of all motor-vehicle deaths occur in urban places, three fourths of all pedestrian deaths and more than one half of all pedalcycle deaths occur in such areas. However, more than nine out of ten noncollision deaths and most collisions with railroad trains happen in rural places. For all locations, persons aged 15 to 44 years old account for 63 per cent of all motor-vehicle deaths.

Four out of five pedalcycle injuries occur in urban areas and 15 to 24 year olds make up more than one third of those injured. Most pedestrian injuries (86 per cent) also occur in urban settings. Other urban-rural and age differences are noted in the tables below.

Motor-Vehicle Deaths and Injuries by Type of Accident, 1988

Type of Accident	Deaths			Nonfatal Injuries		
	Total	Urban	Rural	Total	Urban	Rural
Total	**49,000**	**17,400**	**31,600**	**1,800,000**	**1,120,000**	**680,000**
Collision with—						
Pedestrian	8,800	6,600	2,200	70,000	60,000	10,000
Other motor vehicle	21,200	6,800	14,400	1,340,000	930,000	410,000
Railroad train	600	100	500	3,000	2,000	1,000
Pedalcycle	1,100	600	500	50,000	40,000	10,000
Animal, animal-drawn vehicle	100	([a])	100	7,000	3,000	4,000
Fixed object	3,300	2,100	1,200	60,000	45,000	15,000
Noncollision	13,900	1,200	12,700	270,000	40,000	230,000

Source: National Safety Council estimates, based on reports from city and state traffic authorities.

[a] Less than 5.

Motor-Vehicle Deaths and Injuries by Type, Location, and Age, 1988

Type of Accident	ALL AGES	0-4 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over
				DEATHS				
TOTAL	**49,000**	**1,200**	**2,500**	**14,600**	**16,400**	**7,400**	**3,200**	**3,700**
Pedestrian	8,800	450	1,100	1,150	2,450	1,600	750	1,300
Pedalcycle[a]	1,100	60	340	280	330	30	40	20
Other types	39,100	690	1,060	13,170	13,620	5,770	2,410	2,380
Total—Urban	**17,400**	**500**	**1,200**	**4,800**	**5,100**	**2,700**	**1,400**	**1,700**
Pedestrian	6,600	360	890	700	1,730	1,220	600	1,100
Pedalcycle[a]	600	30	130	180	220	10	20	10
Other types	10,200	110	180	3,920	3,150	1,470	780	590
Total—Rural	**31,600**	**700**	**1,300**	**9,800**	**11,300**	**4,700**	**1,800**	**2,000**
Pedestrian	2,200	90	210	450	720	380	150	200
Pedalcycle[a]	500	30	210	100	110	20	20	10
Other types	28,900	580	880	9,250	10,470	4,300	1,630	1,790
				INJURIES				
TOTAL	**1,800,000**	**40,000**	**140,000**	**620,000**	**660,000**	**240,000**	**60,000**	**40,000**
Pedestrian	70,000	5,000	22,000	12,000	18,000	8,000	2,000	3,000
Pedalcycle[a]	50,000	700	17,000	16,800	14,500	500	300	200
Other types	1,680,000	34,300	101,000	591,200	627,500	231,500	57,700	36,800
Total—Urban	**1,120,000**	**20,000**	**100,000**	**370,000**	**410,000**	**160,000**	**40,000**	**20,000**
Pedestrian	60,000	4,300	19,400	9,800	15,100	6,900	1,800	2,700
Pedalcycle[a]	40,000	300	11,700	14,300	13,000	350	200	150
Other types	1,020,000	15,400	68,900	345,900	381,900	152,750	38,000	17,150
Total—Rural	**680,000**	**20,000**	**40,000**	**250,000**	**250,000**	**80,000**	**20,000**	**20,000**
Pedestrian	10,000	700	2,600	2,200	2,900	1,100	200	300
Pedalcycle[a]	10,000	400	5,300	2,500	1,500	150	100	50
Other types	660,000	18,900	32,100	245,300	245,600	78,750	19,700	19,650

Source: National Safety Council estimates based on reports from the National Center for Health Statistics and state traffic authorities.

[a] Pedalcycle excludes mopeds.

Vehicle movement in accidents

Collisions involving pedestrians account for the largest number of fatal motor-vehicle accidents in urban areas and the smallest number of fatal accidents in rural areas. Noncollisions accounted for the largest number of fatal motor-vehicle accidents in rural areas but were the smallest number of fatal accidents in urban areas. Two-vehicle collisions accounted for the largest number of all accidents in both urban and rural places.

Numbers of Accidents, Total, and by Selected Movement, 1988

Vehicle Movement	Fatal Accidents			All Accidents		
	Total	Urban	Rural	Total	Urban	Rural
Total Accidents	**43,400**	**15,400**	**28,000**	**20,600,000**	**15,300,000**	**5,300,000**
Pedestrian	8,500	6,200	2,300	90,000	70,000	20,000
Two-vehicle collision total	17,000[a]	5,700[a]	11,300[a]	16,960,000	13,950,000	3,010,000
Angle collision	*5,500*	*2,200*	*3,300*	*4,970,000*	*4,340,000*	*630,000*
Head-on collision	*5,600*	*1,200*	*4,400*	*600,000*	*420,000*	*180,000*
Rear-end collision	*1,500*	*700*	*800*	*5,370,000*	*4,420,000*	*950,000*
Other two-vehicle collision	*4,400*	*1,600*	*2,800*	*6,020,000*	*4,770,000*	*1,250,000*
Other collision total	4,500[a]	2,400[a]	2,100[a]	1,090,000[a]	880,000[a]	210,000[a]
Noncollision total	13,400[a]	1,100[a]	12,300[a]	2,460,000[a]	400,000[a]	2,060,000[a]

Source: Based on reports from state traffic authorities and the Deaths and Injuries by Type of Accident table on page 55, top.

[a] Total not comparable to data prior to the 1977 edition of *Accident Facts*.

Accidents by class of trafficway

Fatal accidents happen mostly in rural areas, while nonfatal injury accidents and property damage accidents happen mostly in urban areas. In urban areas, local streets comprised the largest proportion in each of the categories listed. In rural areas, county roads accounted for the largest proportion in all categories except deaths.

Motor-Vehicle Accidents, Deaths, and Injuries by Class of Trafficway, 1988

Class of Trafficway	Fatal Accidents	Injury Accidents	Property Damage Accidents	Deaths	Injuries
All Trafficways	**43,400**	**1,200,000**	**19,400,000**	**49,000**	**1,800,000**
		URBAN[a]			
Number	*15,400*	*830,000*	*14,500,000*	*17,400*[a]	*1,120,000*
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Local streets	43.2	56.8	61.0	42.5	55.1
State roads	19.9	19.0	16.6	20.0	19.8
Interstate	17.0	11.6	9.5	17.1	11.9
U.S. routes	13.4	7.8	8.6	14.0	8.2
County roads	5.7	3.7	2.9	5.6	3.9
Other controlled access roads	0.3	0.4	0.2	0.3	0.4
Major arterial	0.3	0.4	0.5	0.2	0.4
Other	0.2	0.3	0.7	0.3	0.3
		RURAL[a]			
Number	*28,000*	*370,000*	*4,900,000*	*31,600*	*680,000*
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
County roads	34.8	43.0	37.7	33.5	41.5
State roads	33.9	29.8	28.5	34.8	30.8
U.S. routes	13.8	10.0	11.8	14.3	10.9
Interstate	12.4	9.2	10.1	12.8	9.4
Local streets	4.0	6.5	10.1	3.6	6.0
Major arterial	0.3	0.3	0.5	0.3	0.3
Other controlled access roads	0.1	0.4	0.3	0.1	0.4
Other	0.7	0.8	1.0	0.6	0.7

Source: Based on reports from 5 state traffic authorities.

[a] See definitions of Urban and Rural on inside back cover.

Speed

SPEED LIMIT 55
SPEED LIMIT 65

The Surface Transportation and Uniform Relocation Assistance Act of 1987, enacted April 2, 1987, allowed states to raise the speed limit to 65 mph on Interstate highways passing through areas with populations of less than 50,000. In April 1987, 18 states raised the speed limit. In May, nine more states followed suit. By the end of 1987, 38 states had implemented the 65 mph limit.

The National Highway Traffic Safety Administration was directed by Congress to assess the impact of the speed limit increase on highway safety. The main conclusions from the January 1989 report (the first of three annual reports) are presented here.

- Data for 1987 indicate that vehicle miles traveled on rural Interstates increased 8.4 per cent in the 38 states that raised the speed limit by the end of December 1987 and 5.2 per cent in those states that did not.

- For the 38 states that raised rural Interstate speed limits during 1987, 1987 rural Interstate fatalities were 19 per cent higher during the period after the speed limits were increased through the end of the year than for the same period in 1986. Rural Interstate fatalities increased 7 per cent in the 10 states that retained the 55 mph limit on rural Interstates. Rural Interstate fatalities nationwide increased 18 per cent in the 48 states (Alaska and Delaware do not have rural Interstates) with these highways.

- There are about 4,000 fatalities on all Interstate highways each year, of which about half occur on rural Interstates.

- In the first 28 states that raised the speed limit, rural Interstate fatalities increased 18 per cent during June-December, 1987 versus 1986. Rural Interstate fatalities increased 25 per cent during the June-December period in the other 10 states that raised the speed limit during 1987.

- Eight states (Arizona, California, New Mexico, North Carolina, Ohio, Tennessee, Texas, and Utah) accounted for 71 per cent of the total 1987 increase in rural Interstate fatalities in those states that raised their rural Interstate speed limit.

- The fatality rate (deaths per 100 million vehicle miles traveled) on all rural Interstates increased 15 per cent in 1987 compared to 1986 (1.5 vs. 1.3). The fatality rate was 14 per cent higher in the 38 states that increased the speed limit (1.6 vs. 1.4), while the rate was unchanged for the 10 states that remained at 55 mph (0.9 both years).

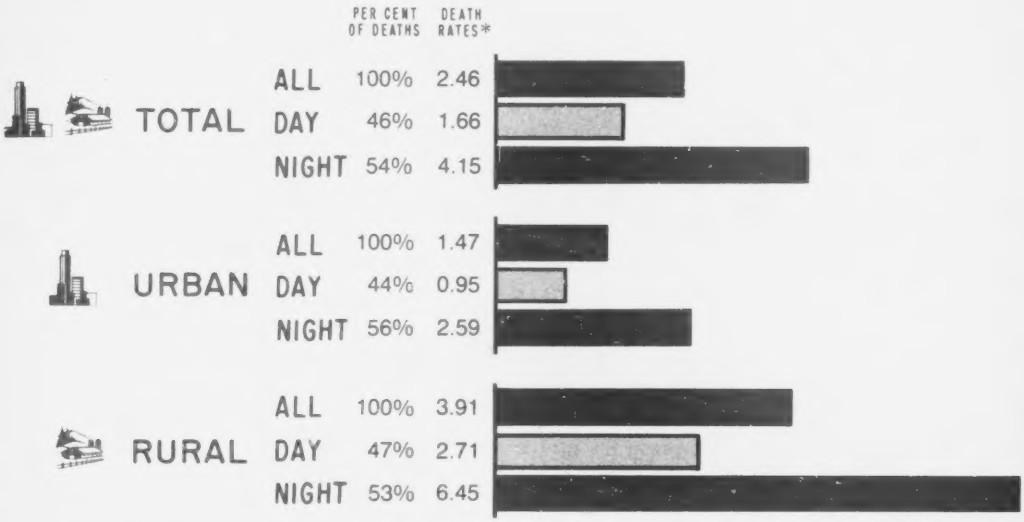
- In the first full calendar year quarter after the speed was raised (July-September), average travel speeds on rural Interstates increased in 13 states that raised the speed limit and provided data. The increase was from 60.3 mph to 62.2 mph compared to an increase from 57.2 mph to 57.6 mph in those states that retained 55 mph.

- As a complement to the 1986-1987 fatality comparisons, a mathematical model was developed which used the historical relationship from 1975 through 1986 between rural Interstate fatalities and fatalities on other highways to estimate the expected number of 1987 rural Interstate fatalities. Rural Interstate fatalities increased 18 per cent in the 38 states that raised their speed limit compared to what would have been expected in 1987 based on the model. An aggregated national model of fatality change produced the same result, estimating that fatalities were on average 16 per cent higher after the speed limit increase than would have been expected from the history of changes. Controlling for the effects of vehicle travel resulted in an estimate that rural Interstate fatalities were about 16 per cent higher in 1987 than would have been expected based on the historical relationship between fatalities and vehicle travel.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration. *The Effects of the 65 mph Speed Limit During 1987: A Report to Congress*. January 1989. Washington, DC: Author.

Deaths and death rates by day and night

Motor-vehicle deaths and the mileage death rates are sharply higher at night, as noted in the chart below. In both urban and rural places, the mileage death rates at night are at least three times the day rates.



Source: State traffic authorities and the Federal Highway Administration.

* Deaths per 100,000,000 vehicle miles.

Hourly Distribution of Accidents by Day of Week, 1988

Hour Beginning	Fatal Accidents					All Accidents				
	Total	Mon.-Thurs.	Fri.	Sat.	Sun.	Total	Mon.-Thurs.	Fri.	Sat.	Sun.
All Hours . . .	*100.0%*	*47.1%*	*16.7%*	*20.0%*	*16.2%*	*100.0%*	*55.7%*	*18.3%*	*15.2%*	*10.8%*
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Midnight	6.3	6.5	3.0	7.1	8.0	2.4	1.5	1.8	4.6	5.2
1:00 a.m.	5.5	3.7	3.8	8.4	9.2	2.2	1.2	1.6	4.3	5.5
2:00 a.m.	5.2	3.9	3.9	7.1	7.9	1.9	1.0	1.4	3.8	4.8
3:00 a.m.	3.2	1.9	2.5	5.2	5.0	1.1	0.6	0.8	2.1	2.9
4:00 a.m.	1.8	1.3	1.0	2.6	3.5	0.8	0.5	0.5	1.4	1.9
5:00 a.m.	2.0	1.8	1.9	2.1	3.0	0.9	0.8	0.7	1.2	1.4
6:00 a.m.	3.2	3.6	2.9	2.7	2.8	2.0	2.4	1.8	1.4	1.5
7:00 a.m.	2.9	3.9	2.5	2.1	1.6	4.7	6.2	4.4	1.7	1.7
8:00 a.m.	2.6	3.2	2.7	1.4	2.3	4.4	5.6	4.0	2.5	2.0
9:00 a.m.	2.3	3.0	1.3	2.4	1.1	3.7	4.0	3.2	3.4	2.9
10:00 a.m.	2.7	3.3	2.8	1.7	2.2	4.2	4.3	3.8	4.5	3.4
11:00 a.m.	3.1	3.6	2.9	3.0	2.0	5.0	5.2	4.8	5.4	4.0
Noon.	3.5	3.8	3.7	2.6	3.2	6.0	6.2	6.0	5.9	5.7
1:00 p.m.	3.3	4.2	2.7	2.0	2.8	5.7	5.8	5.5	5.8	5.6
2:00 p.m.	4.2	4.7	3.7	3.9	3.6	6.3	6.5	6.2	6.0	6.0
3:00 p.m.	4.9	5.5	5.9	3.2	4.3	8.0	8.7	8.3	6.0	6.4
4:00 p.m.	5.2	6.1	5.3	3.2	4.5	8.3	9.1	8.9	6.1	6.7
5:00 p.m.	5.5	5.3	5.4	5.6	5.6	8.3	9.1	8.5	5.9	6.8
6:00 p.m.	5.8	5.6	7.4	5.6	5.3	5.9	5.9	6.0	5.7	6.3
7:00 p.m.	5.4	5.4	6.7	4.9	4.9	4.6	4.2	4.9	4.9	5.2
8:00 p.m.	5.6	5.7	5.5	5.8	5.2	3.7	3.3	4.0	4.3	4.4
9:00 p.m.	5.5	5.7	7.0	4.6	4.5	3.6	3.1	4.2	4.3	3.9
10:00 p.m.	5.0	4.3	7.0	5.5	4.2	3.3	2.6	4.3	4.3	3.1
11:00 p.m.	5.3	4.0	8.5	7.3	3.3	3.0	2.2	4.4	4.5	2.7

Source: Based on reports from 7 state traffic authorities.

Deaths by day and month

Motor-vehicle death totals vary sharply for different days of the week and different months of the year. Totals run above average from Friday through Sunday and during the latter part of the year.

Comparison of the National Safety Council estimated percentage distribution by day of week of 1986 fatalities based on reports from 9 states with the National Center for Health Statistics distribution based on all death certificates shows that the two agree within two percentage points on each day.

The figures shown below are "complete" deaths, which include all motor-vehicle deaths that occur within twelve months after the day of accident. These totals should not be compared with "immediate" death figures, such as those quoted during holiday periods. These latter totals include only those deaths which occur during the holiday period from accidents which occur during the holiday period, and do not include any *subsequent* deaths.

Motor-Vehicle Deaths by Day and Month, 1988

Day	1988 Deaths by Day		Total Deaths by Month and Average Deaths by Day											
	%	Avg.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Total	**100%**	**49,000**	**3,310**	**3,130**	**3,630**	**3,720**	**4,220**	**4,320**	**4,710**	**4,610**	**4,450**	**4,500**	**4,010**	**4,410**
Daily Avg.		**134**	**107**	**108**	**117**	**124**	**136**	**144**	**152**	**149**	**148**	**145**	**134**	**142**
Monday	12%	113	90	91	99	105	115	121	128	126	125	122	113	120
Tuesday	11%	104	83	84	91	96	106	112	118	116	115	113	104	110
Wednesday	12%	113	90	91	99	105	115	121	128	126	125	122	113	120
Thursday	12%	113	90	91	99	105	115	121	128	126	125	122	113	120
Friday	17%	160	128	129	140	148	162	172	181	178	177	173	160	170
Saturday	20%	188	150	152	164	174	191	202	213	209	208	203	188	199
Sunday	16%	151	121	122	132	140	153	162	171	168	167	163	151	160

Source: Based on reports from 9 state traffic authorities.

Deaths and rates by month

Motor-vehicle deaths are at their lowest levels in January and February. Deaths increase to their highest levels in July and remain at this general level the rest of the year. Mileage death rates generally rise during the year with the highest rates in late summer and autumn.

The 1985 fatality total of 45,901 and the 1988 mileage death rate of 2.46 were the lowest recorded in the five year period. Compared to 1987, eight of the twelve months recorded increases in fatalities during 1988.

Motor-Vehicle Deaths and Death Rates by Month, 1984-1988

Month	1988		1987		1986		1985		1984	
	Deaths	Death Rate[a]	Deaths	Death Rate[a]	Deaths	Death Rate[a]	Deaths	Death Rate[a]	Deaths	Death Rate[a]
Total	**49,000**	**2.46**	**48,400**	**2.52**	**47,865**	**2.60**	**45,901**	**2.59**	**46,263**	**2.69**
January	3,310	2.26	3,230	2.31	3,274	2.46	3,102	2.49	3,011	2.46
February	3,130	2.25	3,000	2.21	2,814	2.27	2,753	2.31	2,921	2.49
March	3,610	2.22	3,520	2.23	3,559	2.35	3,397	2.35	3,485	2.54
April	3,720	2.26	3,580	2.24	3,607	2.40	3,693	2.50	3,373	2.39
May	4,220	2.42	4,270	2.54	4,331	2.70	4,063	2.59	3,966	2.63
June	4,320	2.48	4,280	2.55	4,460	2.75	4,394	2.77	4,244	2.77
July	4,710	2.59	4,470	2.54	4,704	2.75	4,319	2.59	4,437	2.74
August	4,610	2.53	4,880	2.75	4,895	2.81	4,536	2.68	4,386	2.66
September	4,450	2.63	4,380	2.67	4,197	2.70	4,037	2.68	4,277	2.93
October	4,500	2.61	4,520	2.71	4,244	2.66	4,076	2.64	4,260	2.89
November	4,010	2.49	4,200	2.70	3,920	2.65	3,942	2.80	3,919	2.85
December	4,410	2.73	4,070	2.62	3,860	2.58	3,589	2.53	3,984	2.93

Source: Deaths—National Center for Health Statistics (1984-1986), National Safety Council estimates (1987 revised, 1988 preliminary). Mileage—Federal Highway Administration. [a] Deaths per 100,000,000 vehicle miles.

Type of motor vehicle

The types of vehicles listed in the table below are classified by body style, not by vehicle use. The truck or truck tractor category includes noncommercial vans, light trucks and pick-ups as well as commercial trucks.

In 1988, passenger cars comprised 75 per cent of the registered vehicles and were involved in less than their share of the fatal accidents (61 per cent). Trucks and motorcycles have the opposite experience from that of passenger cars. Trucks comprised 22 per cent of the vehicles registered and were involved in 28 per cent of the fatal accidents. Motorcycles, motor scooters, and motor bikes comprised 3 per cent of the registrations and were involved in 7 per cent of the fatal accidents.

Types of Motor Vehicles Involved in Accidents, 1988

Type of Vehicle	In Fatal Accidents		In All Accidents		Per Cent of Total Vehicle Registrations[a]	No. of Occupant Fatalities
	Number	%	Number	%		
All Types	**64,000**	**100.0%**	**36,200,000**	**100.0%**	**100.0%**	(b)
Passenger cars	39,300	61.4	28,200,000	77.9	74.6	26,100
Trucks	17,900	28.0	6,800,000	18.8	22.4	7,500
Truck or truck tractor	*11,300*	*17.7*	*5,400,000*	*14.9*	*21.6*	(c)
Truck tractor and semi-trailer	*5,200*	*8.1*	*900,000*	*2.5*	*0.8*	(c)
Other truck combinations	*1,400*	*2.2*	*500,000*	*1.4*		(c)
Farm tractors, equipment	200	0.3	30,000	0.1	(d)	110
Taxicabs	300	0.5	100,000	0.3	0.1	70
Buses, commercial	200	0.3	150,000	0.4	0.1	20
Buses, school	200	0.3	50,000	0.1	0.3	50
Motorcycles	4,000	6.3	350,000	1.0	2.5	3,800
Motor scooters, motor bikes	400	0.6	20,000	0.1		380
Other[e]	1,500	2.3	500,000	1.3	(c)	970

Source: Based on reports from 7 state traffic authorities. Vehicle registrations based on data from Federal Highway Administration and International Taxicab Association.

[a] Percentage figures are based on numbers of vehicles and do not reflect miles traveled or place of travel, both of which affect accident experience.

[b] In addition to these occupant fatalities, there were 8,800 pedestrian, 1,100 pedalcyclist, and 100 other deaths.

[c] Data not available. [d] Not included in total vehicle registrations; estimated tractors--4,420,000.

[e] Includes fire equipment, ambulances, special vehicles, other.

Motorcycles

The mileage death rate for motorcycle riders during 1988 is estimated to be about 41 (deaths per 100,000,000 miles of motorcycle travel). Based on data collected by the Federal Highway Administration, the 1988 rate represents a 5 per cent decrease from the 1987 rate of 43. The motorcycle mileage death rate of 41 compares with the overall motor-vehicle death rate of 2.46.

When a motorcycle is involved in an accident, the rider's chances of being injured or killed are greater than if the operator were riding in a vehicle which afforded more protection. The number of motorcycle riders injured in 1988 is estimated to have been 460,000, including both minor and severe injuries.

Motorcycle[a] and Total Motor-Vehicle Data, 1979-1988

Year	Vehicles				Occupant Deaths			
	Motorcycles		All Mot. Veh.		Motorcycles		All Mot. Veh.	
	No.	% Change[b]	No.	% Change[b]	No.	% Change[b]	No.	% Change[b]
1979	5,502,450	+13.3	159,600,000	+3.9	4,080[c]	— 9.9	41,400	+ 0.7
1980	5,724,602	+ 4.0	161,600,000	+1.3	4,480[c]	+ 9.8	41,700	+ 0.7
1981	5,831,132	+ 1.9	164,100,000	+1.5	4,720[c]	+ 5.4	40,500	— 2.9
1982	5,743,463	— 1.5	165,300,000	+0.7	4,370[c]	— 7.4	36,200	—10.6
1983	5,535,112	— 3.6	169,400,000	+2.5	4,340[c]	— 0.7	35,400	— 2.2
1984	5,479,822	— 1.0	172,000,000	+1.5	4,580[c]	+ 5.5	36,900	+ 4.2
1985	5,444,404	— 0.6	177,100,000	+3.0	4,440[c]	— 3.1	36,100	— 2.2
1986	5,262,322	— 3.3	181,500,000	+2.5	4,700[c]	+ 5.9	38,300	+ 6.1
1987	5,148,000	— 2.2	186,100,000	+2.6	4,200[c]	—10.6	38,700	+ 1.0
1988	4,719,000	— 8.3	188,200,000	+1.1	4,180[c]	— 0.5	39,000	+ 0.8

Source: Vehicles—Federal Highway Administration; occupant deaths—National Safety Council.

[a] Includes motor scooter, motorized bicycle, and motorized tricycle.

[b] Change from previous year.

[c] May include some moped rider fatalities.

Improper driving

In most accidents, factors are present relating to the driver, the vehicle, and the road, and it is the interaction of these factors which often sets up the series of events which culminates in the mishap.

The table below relates just to the driver and shows the principal kinds of improper driving which were factors in accidents. Correcting these improper practices could have an important effect on accident occurrences. This does not mean that road and vehicle conditions can be disregarded.

Improper Driving Reported in Accidents, 1988

Kind of Improper Driving	Fatal Accidents			Injury Accidents			All Accidents[a]		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Improper driving	**61.4**	**59.6**	**62.2**	**69.5**	**70.4**	**67.8**	**67.2**	**68.0**	**65.5**
Speed too fast[b]	30.3	28.2	31.2	25.1	22.0	30.4	20.4	17.9	26.0
Right of way	11.3	17.0	8.9	23.8	28.9	15.3	22.8	26.3	15.3
Failed to yield	*7.3*	*10.0*	*6.2*	*16.7*	*19.5*	*12.1*	*17.1*	*19.3*	*12.6*
Passed stop sign	*2.2*	*2.6*	*1.9*	*2.3*	*2.5*	*2.0*	*1.8*	*1.8*	*1.6*
Disregarded signal	*1.8*	*4.4*	*0.8*	*4.8*	*6.9*	*1.2*	*3.9*	*5.2*	*1.1*
Drove left of center	8.1	3.3	10.2	3.1	1.2	6.1	2.8	1.5	5.5
Improper overtaking	5.1	3.7	5.7	2.0	1.6	2.7	2.5	2.3	2.9
Made improper turn	0.5	0.5	0.5	1.5	1.8	1.0	2.6	3.0	1.6
Followed too closely	0.4	0.4	0.4	5.7	6.8	3.7	6.2	7.1	4.3
Other improper driving	5.7	6.5	5.3	8.3	8.1	8.6	9.9	9.9	9.9
No improper driving stated	**38.6**	**40.4**	**37.8**	**30.5**	**29.6**	**32.2**	**32.8**	**32.0**	**34.5**

Source: Based on urban and rural reports from 7 state traffic authorities.

[a] Principally property damage accidents, but also includes fatal and injury accidents.

[b] Includes "speed too fast for conditions."

Motor carriers

In 1986, slightly more than one half of the drivers of motor carriers involved in accidents had less than two years of experience with the reporting carrier according to data from the Federal Highway Administration Office of Motor Carriers. Generally, as age and experience increase the involvements in accidents decrease.

Accident Involvements by Driver Age and Years of Experience with Reporting Motor Carrier[a], 1986

Driver Age	All Years[b]	Years of Experience									
		Under 1 Year	1 Year	2 Years	3 Years	4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25 Years and Over
All Ages[b]	**100.0%**	**15.9%**	**37.7%**	**11.4%**	**6.1%**	**3.2%**	**11.3%**	**5.5%**	**3.3%**	**1.9%**	**1.5%**
Under 18	**([c])**	...	...	...	...	...	...	...	...	...	...
18-19	**0.1%**	([c])	([c])	...	...	...	...	...	...	...	...
20-24	**6.0%**	1.4	3.6	0.7	0.1	([c])	([c])	...	...	...	...
25-29	**16.2%**	3.5	8.0	2.0	1.0	0.5	1.0	([c])	...	...	...
30-34	**16.5%**	3.1	7.1	2.0	1.1	0.6	2.0	0.5	([c])	...	...
35-39	**16.2%**	2.6	6.3	1.9	1.[illegible]	0.5	2.3	1.1	0.3	...	...
40-44	**13.4%**	2.1	4.6	1.6	0.8	0.5	1.9	1.0	0.7	0.2	...
45-49	**11.7%**	1.4	3.5	1.4	0.8	0.5	1.6	1.0	0.8	0.5	0.1
50-54	**10.0%**	0.9	2.3	0.9	0.6	0.3	1.2	0.8	0.6	0.5	0.3
55-59	**6.5%**	0.7	1.6	0.6	0.4	0.2	0.8	0.7	0.6	0.5	0.6
60 and over	**3.4%**	0.2	0.7	0.3	0.1	0.1	0.5	0.4	0.3	0.2	0.4

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Motor Carriers. *Accidents of Motor Carriers of Property 1986*, September 1988. Washington, DC: Author.

[a] Includes only motor carriers engaged in interstate or foreign commerce and generally subject to regulation by the Interstate Commerce Commission.

[b] Components may not add to totals due to rounding. Totals include driver age and years of experience not reported.

[c] Less than 0.05 per cent.

Motor-vehicle deaths on major holidays

Generally, both deaths and death rates are higher during the holidays than they are during comparable nonholiday periods. For traffic deaths, the number that occurred during five holidays (excluding Thanksgiving) over the three years 1986-1988 was 4 per cent higher than what would have been normal for nonholidays at the same time of the year. Over these same holidays, vehicle travel was 5 per cent higher. Because travel increased more percentagewise than deaths, *death rates* averaged 3 per cent lower during holidays.

Year	Memorial Day		Fourth of July		Labor Day		Thanksgiving		Christmas		New Year's	
	Immed. Deaths[a]	Total Deaths	Immed. Deaths	Total Deaths	Immed. Deaths	Total Deaths	Immed. Deaths	Total Deaths	Immed. Deaths	Total Deaths	Immed. Deaths	Total Deaths
1976[b] . . .	455 (3)	610	523 (3)	700	526 (3)	700	508 (4)	630	441 (3)	590	339 (3)	450
1977 . . .	456 (3)	610	574 (3)	770	469 (3)	630	498 (4)	620	390 (3)	520	338 (3)	450
1978 . . .	542 (3)	720	712 (4)	890	559 (3)	750	562 (4)	700	456 (3)	610	370 (3)	490
1979 . . .	508 (3)	680	164 (1)	250	519 (3)	690	475 (4)	590	693 (4)	870	493 (4)	620
1980 . . .	447 (3)	600	463 (3)	620	531 (3)	710	522 (4)	650	502 (4)	630	463 (4)	580
1981 . . .	420 (3)	560	578 (3)	770	473 (3)	630	442 (4)	550	354 (3)	470	338 (3)	450
1982 . . .	341 (3)	460	470 (3)	630	492 (3)	660	433 (4)	540	346 (3)	460	282 (3)	380
1983 . . .	437 (3)	580	447 (3)	600	480 (3)	640	400 (4)	500	238 (3)	320	274 (3)	370
1984 . . .	378 (3)	500	. . .	. . .	451 (3)	600	402 (4)	500	537 (4)	670	366 (4)	460
1985 . . .	411 (3)	550	492 (4)	620	439 (3)	590	390 (4)	490	168 (2)	240	202 (2)	290
1986 . . .	435 (3)	580	450 (3)	600	487 (3)	650	443 (4)	550	380 (4)	480	356 (4)	480
1987 . . .	416 (3)	550	415 (3)	550	453 (3)	600	503 (4)	630	389 (4)	490	375 (4)	470
1988 . . .	404 (3)	540	463 (3)	620	422 (3)	560	454 (4)	570	386 (3)	510	317 (3)	420

Source: Immediate deaths, press associations; Total deaths, National Safety Council estimates.

[a] Immediate deaths include only those which occurred by midnight of the last day of the holiday period. Total deaths include immediate deaths plus an estimate of delayed deaths—those which occur within twelve months after the day of accident (they are charged back to the day of the accident).

[b] Figures in parentheses show number of full days in each holiday period. Deaths are for these days plus the last six hours of the preceding day.

Milestones in motor-vehicle deaths

The first motor-vehicle death in the United States is reported to have occurred in New York City on September 14, 1899. The world's first motor-vehicle death probably occurred in London, England, on August 17, 1896.

Since the first motor-vehicle death in the United States, slightly more than 2,700,000 persons have died in motor-vehicle accidents through the end of 1988. Based on historical figures, the 1,000,000th motor-vehicle death occurred sometime during 1952. The 2,000,000th motor-vehicle death occurred in early 1974.

If the current annual trend in motor-vehicle deaths continues, the 3,000,000th motor-vehicle death will probably occur in the early 1990s.

Residence of driver

According to 1988 data from five state traffic authorities, about 89 per cent of the drivers involved in fatal accidents were residents of the state in which the accident occurred; 69 per cent of them were local residents (less than 25 miles from home), and 20 per cent resided elsewhere in the state. About 94 per cent of the drivers in injury and all accidents were residents of the state in which the accident occurred.

Residence of Driver in Motor-Vehicle Traffic Accidents, 1988

Residence	Fatal Accidents	Injury Accidents	All Accidents
Total	**100.0%**	**100.0%**	**100.0%**
Resident of state in which accident happened . . .	88.6	94.4	93.6
Local resident[a]	*68.6*	*83.3*	*82.9*
Residing elsewhere in the state	*20.0*	*11.1*	*10.7*
Nonresident of state	11.4	5.6	6.4

Source: Based on reports from 5 state traffic authorities.

[a] Less than 25 miles from home.

Pedestrians

More than half of the pedestrian deaths and injuries happen when these persons cross or enter streets. More than one third of all actions occur between intersections, but the proportion varies for persons of different ages. These and other actions are shown in the table below.

Deaths and Injuries of Pedestrians by Age and Action, 1988

Actions	Age of Persons Killed or Injured								
	ALL AGES	Under 5	5-9	10-14	15-19	20-24	25-44	45-64	65 and Over
All Actions	*100.0%*	*7.3%*	*17.0%*	*11.2%*	*10.6%*	*9.1%*	*26.1%*	*11.0%*	*7.7%*
Total Pedestrians	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Crossing or entering	57.8	63.4	70.6	64.4	51.0	47.2	48.3	56.6	70.1
—at intersection	*23.3*	*9.4*	*17.2*	*25.2*	*24.3*	*21.9*	*23.0*	*30.1*	*38.6*
—between intersection	*34.5*	*54.0*	*53.4*	*39.2*	*26.7*	*25.3*	*25.3*	*26.5*	*31.5*
Walking in roadway	9.7	2.2	2.8	7.5	13.6	12.0	13.9	11.9	10.0
—with traffic	*6.2*	*0.9*	*1.6*	*4.7*	*8.8*	*8.4*	*9.9*	*6.2*	*4.8*
—against traffic	*3.5*	*1.3*	*1.2*	*2.8*	*4.8*	*3.6*	*4.0*	*5.7*	*5.2*
Standing in roadway	5.1	2.4	0.9	2.4	7.1	8.9	7.7	6.3	3.3
Pushing or working on vehicle in roadway	2.3	0.4	0.2	0.5	2.2	6.1	4.0	3.1	1.0
Other working in roadway	1.8	0.0	0.1	0.1	1.0	2.7	3.7	3.4	0.6
Playing in roadway	3.4	12.5	7.6	6.5	2.2	0.7	0.5	0.3	0.2
Other in roadway	12.6	14.0	15.5	13.5	13.7	13.0	11.7	10.3	7.5
Not in roadway	7.3	5.1	2.3	5.1	9.2	9.4	10.2	8.1	7.3

Source: Based on 1988 reports of deaths and injuries from 9 state traffic authorities.

Pedalcycle accidents

Since 1940, the number of pedalcycle-motor-vehicle deaths has increased about 47 per cent. The number of pedalcycles in use has increased fourteenfold so that the death rate (number of deaths per 100,000 pedalcycles in use) is one ninth the rate in 1940.

The proportion of deaths occurring to young adults and adults has steadily increased since 1960. Persons 15 years of age and older accounted for two thirds of the deaths in 1988 compared to about one fifth in 1960.

Pedalcycle Rates and Deaths by Age, 1940-1988

Year	Pedalcycles[a] (millions)	Deaths	Death Rate[b]	Per Cent of Deaths by Age			
				All Ages	0-14	15-24	25 & Over
1940	7.8	750	9.59	100%	48	39	13
1945	9.0	500	5.55	100%	56	22	22
1950	13.8	440	3.18	100%	82	9	9
1955	23.1	410	1.78	100%	71	12	17
1960	28.2	460	1.63	100%	78	9	13
1965	38.8	680	1.75	100%	64	18	18
1970	56.5	780	1.38	100%	66	15	19
1975	95.0	1,000	1.05	100%	49	28	23
1979	98.5[c]	1,200	1.22	100%	38	36	26
1980	100.0[c]	1,200	1.20	100%	35	36	29
1981	101.5[c]	1,200	1.18	100%	36	35	29
1982	104.0[c]	1,100	1.06	100%	35	27	38
1983	105.5[c]	1,100	1.04	100%	40	29	31
1984	106.1[c]	1,100	1.04	100%	39	27	34
1985	108.0[c]	1,100	1.02	100%	49	24	27
1986	111.0[c]	1,100	0.99	100%	32	35	33
1987	111.0[c]	1,200	1.08	100%	31	32	37
1988	111.0[c]	1,100	0.99	100%	36	26	38

Source: National Center for Health Statistics, state traffic authorities and National Safety Council estimates.

[a] Pedalcycles in use for a given year is the ten-year total (that year and the previous nine years) of domestic production plus imports less exports.

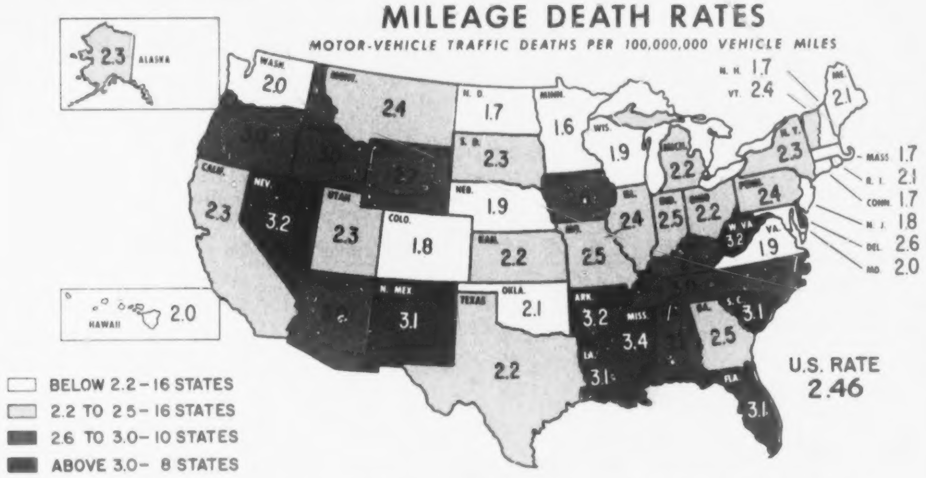
[b] Deaths per 100,000 pedalcycles in use.

[c] Includes sidewalk pedalcycles.

Motor-vehicle death rates by state, 1988

MILEAGE DEATH RATES

MOTOR-VEHICLE TRAFFIC DEATHS PER 100,000,000 VEHICLE MILES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WASH. 2.0
MONT. 2.4
N. D. 1.7
MINN. 1.6
N. H. 1.7
VT. 2.4
ME. 2.1
3.0
3.0
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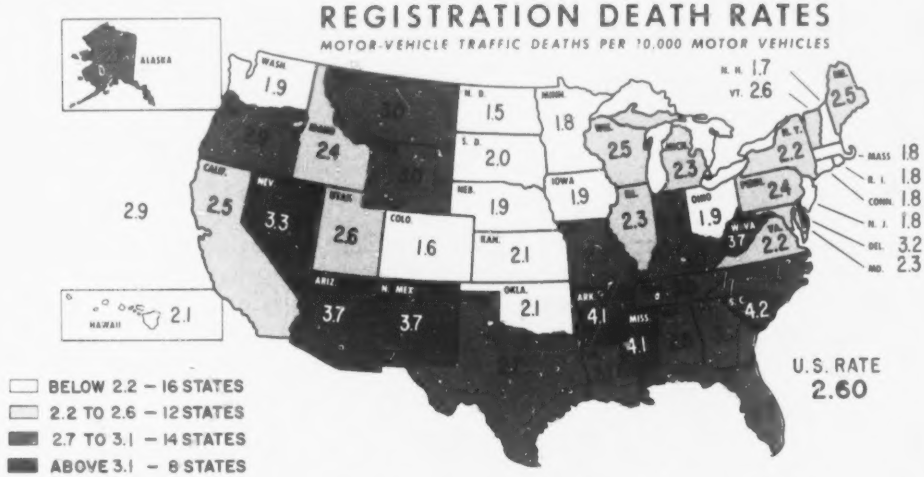
S. D. 2.3
WIS. 1.9
MICH. 2.2
N. Y. 2.3
MASS. 1.7
R. I. 2.1
CONN. 1.7
N. J. 1.8
DEL. 2.6
MD. 2.0
CALIF. 2.3
NEV. 3.2
UTAH 2.3
COLO. 1.8
NEB. 1.9
ILL. 2.4
IND. 2.5
OHIO 2.2
PENN. 2.4
W. VA. 3.2
VA. 1.9
KAN. 2.2
MO. 2.5
N. MEX. 3.1
TEXAS 2.2
OKLA. 2.1
ARK. 3.2
MISS. 3.4
LA. 3.1
GA. 2.5
S.C. 3.1
FLA. 3.1
HAWAII 2.0
U.S. RATE 2.46
BELOW 2.2 – 16 STATES
2.2 TO 2.5 – 16 STATES
2.6 TO 3.0 – 10 STATES
ABOVE 3.0 – 8 STATES

REGISTRATION DEATH RATES

MOTOR-VEHICLE TRAFFIC DEATHS PER 10,000 MOTOR VEHICLES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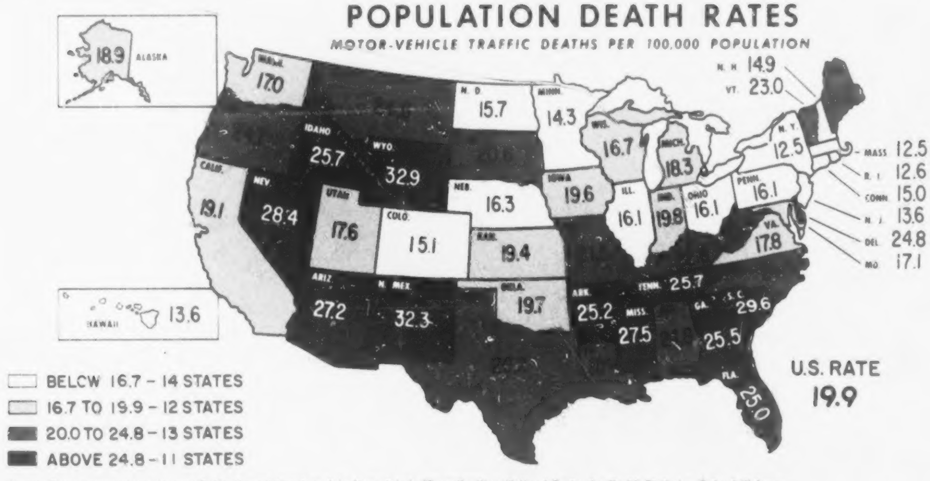
WASH. 1.9
3.0
N. D. 1.5
MINN. 1.8
N. H. 1.7
VT. 2.6
ME. 2.5
2.9
IDAHO 2.4
3.0
S. D. 2.0
WIS. 2.5
MICH. 2.3
N. Y. 2.2
MASS. 1.8
R. I. 1.8
CONN. 1.8
N. J. 1.8
DEL. 3.2
MD. 2.3
CALIF. 2.5
NEV. 3.3
UTAH 2.6
COLO. 1.6
NEB. 1.9
IOWA 1.9
ILL. 2.3
OHIO 1.9
PENN. 2.4
W. VA. 3.7
VA. 2.2
KAN. 2.1
ARIZ. 3.7
N. MEX. 3.7
OKLA. 2.1
ARK. 4.1
MISS. 4.1
S.C. 4.2
HAWAII 2.1
U.S. RATE 2.60
BELOW 2.2 – 16 STATES
2.2 TO 2.6 – 12 STATES
2.7 TO 3.1 – 14 STATES
ABOVE 3.1 – 8 STATES

POPULATION DEATH RATES

MOTOR-VEHICLE TRAFFIC DEATHS PER 100,000 POPULATION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WIS. 16.7
MICH. 18.3
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MASS. 12.5
R. I. 12.6
CONN. 15.0
N. J. 13.6
DEL. 24.8
MD. 17.1
CALIF. 19.1
NEV. 28.4
UTAH 17.6
COLO. 15.1
NEB. 16.3
IOWA 19.6
ILL. 16.1
IND. 19.8
OHIO 16.1
PENN. 16.1
VA. 17.8
KAN. 19.4
ARIZ. 27.2
N. MEX. 32.3
OKLA. 19.7
ARK. 25.2
TENN. 25.7
MISS. 27.5
GA. 25.5
S.C. 29.6
FLA. 25.0
HAWAII 13.6
U.S. RATE 19.9
BELOW 16.7 – 14 STATES
16.7 TO 19.9 – 12 STATES
20.0 TO 24.8 – 13 STATES
ABOVE 24.8 – 11 STATES

Source: Rates estimated by National Safety Council based on data from state traffic authorities, National Center for Health Statistics, Federal Highway Administration, and the U. S. Census Bureau.

Motor-Vehicle Deaths by State, 1985-1988

(Population Death Rates for 1988 by place of accident are shown on page 64)

State	Motor-Vehicle *Traffic* Deaths (Place of Accident)				*Total* Motor-Vehicle Deaths[a] (Place of Residence)			
	Number		Mileage Rate[b]		Number		Population Rate[b]	
	1988	1987	1988	1987	1986[c]	1985	1986	1985
Total U.S.[a]	**49,000**	**48,400**	**2.5**	**2.5**	**47,865**	**45,901**	**19.9**	**19.2**
Alabama	1,023	1,116	2.7	3.0	1,192	1,013	29.4	25.2
Alaska	97	76	2.3	1.9	102	126	19.2	24.1
Arizona	944	939	3.0	3.0	956	869	29.2	27.2
Arkansas	610	639	3.2	3.5	604	583	25.5	24.7
California	5,381	5,500	2.3	2.4	5,523	5,291	20.5	20.1
Colorado	496	591	1.8	2.2	638	619	19.5	19.1
Connecticut	486	451	1.7	1.7	457	481	14.3	15.2
Delaware	164	147	2.6	2.4	152	119	24.0	19.1
Dist. of Col.	63	56	1.9	1.7	52	56	8.3	9.0
Florida	3,092	2,891	3.1	3.1	2,778	2,805	23.8	24.7
Georgia	1,633	1,604	2.5	2.7	1,557	1,440	25.5	24.1
Hawaii	149	138	2.0	1.9	115	129	10.8	12.3
Idaho	257	260	3.0	3.2	271	257	27.0	25.6
Illinois	1,862	1,685	2.4	2.2	1,759	1,752	15.2	15.2
Indiana	1,104	1,056	2.5	2.4	1,082	1,066	19.7	19.4
Iowa	556	491	2.6	2.4	462	523	16.2	18.2
Kansas	483	491	2.2	2.4	549	518	22.3	21.1
Kentucky	840	849	2.6	2.8	849	731	22.8	19.6
Louisiana	923	827	3.1	2.7	983	991	21.8	22.1
Maine	246	228	2.1	2.1	205	211	17.5	18.1
Maryland	793	830	2.0	2.3	794	766	17.8	17.4
Massachusetts	731	690	1.7	1.6	811	810	13.9	13.9
Michigan	1,699	1,632	2.2	2.2	1,738	1,684	19.0	18.5
Minnesota	615	530	1.6	1.5	631	676	15.0	16.1
Mississippi	722	756	3.4	3.7	783	688	29.8	26.3
Missouri	1,104	1,058	2.5	2.4	1,159	945	22.9	18.8
Montana	198	234	2.4	2.9	228	210	27.9	25.5
Nebraska	291	297	1.9	2.3	295	261	18.5	16.3
Nevada	286	262	3.2	3.1	220	214	22.8	22.8
New Hampshire	163	179	1.7	2.0	167	176	16.3	17.6
New Jersey	1,052	1,023	1.8	1.8	1,090	1,015	14.3	13.4
New Mexico	487	568	3.1	3.8	506	504	34.2	34.7
New York	2,237	2,327	2.3	2.4	2,263	2,176	12.7	12.3
North Carolina	1,587	1,601	2.7	2.9	1,712	1,518	27.0	24.2
North Dakota	104	101	1.7	1.8	118	103	17.4	15.0
Ohio	1,748	1,692	2.2	2.1	1,649	1,657	15.3	15.4
Oklahoma	642	611	2.1	1.9	737	775	22.3	23.4
Oregon	677	618	3.0	2.6	643	610	23.8	22.7
Pennsylvania	1,932	2,006	2.4	2.6	2,009	1,823	16.9	15.4
Rhode Island	125	100	2.1	1.7	141	112	14.5	11.6
South Carolina	1,034	1,087	3.1	3.6	1,047	924	31.0	27.7
South Dakota	147	134	2.3	2.2	135	147	19.1	20.8
Tennessee	1,266	1,247	3.0	3.0	1,268	1,137	26.4	23.9
Texas	3,395	3,261	2.2	2.2	3,715	3,799	22.3	23.2
Utah	297	297	2.3	2.3	328	342	19.7	20.8
Vermont	128	120	2.4	2.4	96	108	17.7	20.2
Virginia	1,069	1,022	1.9	1.9	1,122	998	19.4	17.5
Washington	785	790	2.0	2.1	810	797	18.1	18.1
West Virginia	460	471	3.2	3.4	447	443	23.3	22.9
Wisconsin	813	813	1.9	2.0	765	773	16.0	16.2
Wyoming	155	129	2.7	2.4	152	130	30.0	25.5

Source: Motor-Vehicle *Traffic* Deaths from state traffic authorities; *Total* Motor-Vehicle Deaths from National Center for Health Statistics.

[a] Includes both traffic and nontraffic motor-vehicle deaths. See definitions of traffic and nontraffic accidents on inside of back cover.

[b] The mileage death rate is deaths per 100,000,000 vehicle miles; the population death rate is deaths per 100,000 population. 1988 mileage death rates are National Safety Council estimates.

[c] Latest year available. See page 31 for comparability.

Nations

Death totals of different nations must be compared cautiously because of differences in the volume and kinds of traffic, numbers of vehicles, population density, definitions of deaths, and other factors. (Certain definition differences are stated in the footnote.) The population rates shown provide one basis for adjustment but are not as useful as rates based on mileage, which are not available for all countries. The ratios of population to vehicles indicate the relative mobility or dependence of the population on the motor vehicle as a means of transportation.

Motor-Vehicle Deaths, Rates[a], and Vehicle Registrations by Nation

	Motor-Vehicle Deaths			1987 Vehicle Registrations			
Nation	Year	Number	Rate[a]	All Vehicles	Pop. Per Veh.	Passenger Cars	Pop. Per Car
Syrian Arab Republic	1985	176	1.7	...	...	...	...
Hong Kong	1987	283	5.0	299,119	19	183,799	31
Chile	1986	796	6.5	866,170	15	590,719	22
Thailand	1987	4,441	8.3	1,486,270	37	572,107	96
Argentina	1985	2,628	8.6	5,542,000	5.9	4,060,000	8.0
Dominican Republic	1985	557	8.9	...	...	...	...
Singapore	1987	233	8.9	471,124	5.7	236,120	11
Uruguay	1986	286	9.4	245,000	12	164,000	18
England, Wales	1987	4,754	9.5	...	...	...	...
Israel	1986	419	9.7	788,270	5.7	648,847	6.9
Czechoslovakia	1986	1,525	9.8	3,149,442	5.0	2,724,442	5.7
Japan	1987	12,374	10.2	49,901,936	2.5	29,478,342	4.2
Netherlands	1986	1,491	10.2	5,624,248	2.6	5,117,748	2.9
Sweden	1986	858	10.3	3,626,147	2.3	3,366,571	2.5
East Germany	1987	1,731	10.4	3,739,199	4.5	3,462,184	4.8
Costa Rica	1986	344	10.6	150,000	19	85,000	34
Paraguay	1986	241	10.6	...	...	...	...
Norway	1986	469	11.3	1,926,340	2.2	1,623,137	2.6
Scotland	1987	580	11.3	...	...	...	...
Ireland	1986	422	11.9	931,087	4.0	736,595	5.1
Bulgaria	1987	1,107	12.3	1,128,000	8.0	1,100,000	8.2
Finland	1986	604	12.3	1,919,719	2.6	1,698,671	2.9
West Germany	1987	7,566	12.4	30,105,249	2.0	28,304,184	2.1
Poland	1987	5,118	13.6	4,875,000	7.9	4,000,000	9.6
Denmark	1986	728	14.2	1,882,280	2.7	1,587,641	3.2
Northern Ireland	1987	224	14.2	...	...	...	...
Spain	1985	5,670[b]	14.7	12,130,484	3.3	10,218,526	3.9
Switzerland	1987	971	14.8	3,151,481	2.1	2,732,720	2.4
Canada	1986	3,922[c]	15.5	14,715,000	1.7	11,500,000	2.2
Yugoslavia	1987	3,657	15.6	3,276,886	7.2	3,040,362	7.8
Hungary	1987	1,688	15.9	1,879,002	5.6	1,660,258	6.4
Italy	1985	9,066[d]	15.9	24,716,000	2.3	22,800,000	2.5
Panama	1986	368	16.5	...	...	...	...
Puerto Rico	1985	593	17.2	1,503,090	2.2	1,280,056	2.6
Ecuador	1986	1,721	17.8	...	...	...	...
Kuwait	1987	343	18.3	554,500	3.5	435,000	4.5
Australia	1986	2,987	18.6	9,022,700	1.8	7,072,800	2.3
France	1986	10,340[e]	18.7	24,854,000	2.2	21,950,000	2.5
Austria	1987	1,422	18.8	3,336,022	2.3	2,684,780	2.8
Greece	1986	1,929	19.4	2,107,469	4.8	1,432,577	7.0
United States	**1986**	**47,865[c]**	**19.9**	**179,044,449**	**1.4**	**137,323,632**	**1.8**
Belgium	1986	2,058[d]	20.9	3,841,069	2.6	3,457,426	2.9
New Zealand	1986	762	23.2	1,750,916	1.9	1,423,996	2.4
Portugal	1986	2,506	24.6	1,683,500	6.1	1,290,000	7.9

Source: Motor-vehicle deaths—World Health Organization. Vehicle registrations—Motor Vehicle Manufacturers Association of the U.S., Inc., *Motor Vehicle Facts and Figures, 1989 Edition*. Used with permission.

[a] Deaths per 100,000 population.

DEATH DEFINITION: In general, deaths are included if they occur within thirty days after the accident, but other time periods are as follows: [b] 24 hours, [c] one year, [d] at accident scene only, [e] three days.

Fleet Accident Rates by Division, 1986-1988
Reporters in the National Fleet Safety Contests

Fleet Divisions and Groups	1988			Accidents Per 1,000,000 Vehicle Miles	
	Fleets	Vehicles	Veh. Miles (thousands)	1988	1986-1988
Government Division	**7**	**2,798**	**41,939**	**5.84**	**8.65**
Intercity	1	84	3,021	10.59	16.38
City	4	331	3,133	20.75	26.12
State Highway Departments	2	2,383	35,785	4.14	4.48
Meat Packing Truck Division	**21**	**900**	**42,775**	**5.21**	**5.03**
Petroleum Division	**15**	**978**	**25,981**	**2.08**	**3.32**
Intercity Marketing	6	68	6,062	2.14	3.80
Refining	1	41	718	4.18	3.19
Production	6	416	8,646	1.85	2.51
Pipeline	2	453	10,555	2.08	3.04
Public Utility Division	**106**	**61,312**	**691,809**	**5.98**	**6.13**
Electric Utility	76	55,255	627,152	5.83	5.99
Water & Communications Utility	30	6,057	64,657	7.36	7.48
Small Fleet Division	**12**	**82**	**4,633**	**2.81**	**2.63**
Commercial Intercity	10	65	4,155	3.13	2.78
Commercial City	2	17	478	.00	1.27
Dairy Industry Division	**61**	**1,204**	**52,512**	**2.95**	**2.45**
Retail Truck	2	34	657	3.04	1.42
Wholesale Truck	10	338	5,691	4.21	2.61
Over-The-Road Truck	28	682	38,972	3.03	2.67
Small Fleet	21	150	7,185	1.53	1.35
Passenger Car Division[a]	**42**	**8,055**	**132,810**	**4.09**	**4.97**
Eastern Region	18	4,855	86,487	4.56	5.35
Western Region	18	3,151	45,280	3.22	4.32
Small Fleet	6	49	1,042	2.88	3.35
Police Division	**20**	**6,313**	**127,162**	**11.29**	**10.67**
Municipal Police	9	1,371	21,331	35.82	32.30
State Police	4	4,817	105,605	6.28	5.67
Motorcycles	3	95	122	24.67	31.15
Small Fleet	4	30	104	57.89	62.94
School Bus Division	**21**	**740**	**10,592**	**8.12**	**9.27**
Transit Division	**32**	**5,403**	**202,719**	**29.50**	**31.55**
Truck Division[b]	**101**	**27,385**	**681,346**	**15.23**	**14.24**
Intercity	55	5,202	245,018	4.20	3.45
City	29	22,062	428,816	21.76	25.39
Small Fleet	17	121	7,512	2.13	2.62
Postal Service Division	**276**	**33,362**	**156,389**	**18.05**	**17.84**
Intercity	8	964	15,080	17.04	15.88
City	56	9,710	52,147	21.38	22.25
Light Delivery Vehicles	178	18,638	75,758	16.84	16.84
Passenger Cars-City	34	4,050	13,404	13.06	10.75
Automobile Transporters Division	**25**	**13,036**	**780,294**	**4.70**	**5.32**
Truckaway	20	12,288	713,228	4.79	5.41
Driveaway	5	748	67,066	3.74	3.99
Gas Industry Division	**69**	**29,310**	**387,806**	**7.49**	**7.73**
Gas Utility	49	21,795	255,842	9.02	9.45
Gas Transmission System	20	7,515	131,964	4.52	4.27
Intercity Bus Division	**36**	**4,809**	**429,811**	**5.68**	**5.16**
Eastern Region	16	2,778	256,979	5.99	5.38
Western Region	7	1,707	152,959	5.14	4.61
Charter	9	140	14,797	2.37	3.60
Suburban Commuter	3	171	4,658	17.39	21.08
Airport Shuttle	1	13	418	.00	. . .
Mail Contractors Division	**38**	**1,157**	**146,234**	**2.07**	**1.91**
Tractor-Trailer	19	930	132,788	2.07	1.92
Straight Truck	8	151	8,341	2.40	2.17
Small Fleet	11	76	5,105	1.57	1.03

Source: National Fleet Safety Contests. These reports include property damage as well as personal injury accidents, but exclude accidents in which the fleet vehicle was properly parked. See also *Fleet Accident Rates*, 1989 edition.

[a] Includes only cars used in the course of work by such persons as salesmen, supervisors, etc.

[b] Includes common carriers, private carriers and contract carriers.

School bus accidents, 1988

School bus transportation accidents killed an estimated 110 persons nationwide in the school year 1987-1988, including 40 pupils, 5 bus drivers and 65 other persons. These national estimates are projected from data received from 35 states and the District of Columbia.

Of the pupils killed, about 10 were passengers on school buses and 30 were pedestrians either approaching or leaving a loading zone. More than half of the pupil pedestrian victims were struck by the school bus which they were entering or leaving.

Injuries in school bus related accidents totaled about 14,600 of which 8,400 were students.

The table on page 69 shows certain details of the injury and property damage accidents which occurred in school year 1987-1988 or calendar year 1988. Types of school bus accidents not itemized include an estimated 300 pedestrian, 160 bicycle, and 10 railroad accidents. About eight out of ten accidents involved property damage with no injuries.

Characteristics of school bus transportation

Interpretation of school bus accident data is complicated by the many variations between state operations, by lack of standard definitions of terms, and by lack of comparable reporting by states.

The state totals in the table on page 69 are shown as reported by the states. The U.S. totals are National Safety Council estimates developed by inflating the total from reporting states to compensate for the portion from missing states. State figures are weighted based on the number of pupils transported in that state.

Terms and reporting classifications

Vehicles. Included are regular school buses and other nonfamily-owned vehicles used in transporting pupils.

Annual bus mileage. Total mileage includes deadheading (traveling with no pupil passengers) and extracurricular activity trips. Data from three states indicate that deadheading may average about 21 per cent of total mileage, ranging from practically none in some states, up to one fourth of the total bus mileage in others, depending on arrangements for driver and bus storage. Extracurricular mileage, based on 13 states, is indicated to be about 11 per cent of total mileage, also with a wide range among states. Such mileage includes athletic and field trips, shuttle service, and so on.

Pupils transported daily. A pupil is counted only once for each day transported, although usually two one-way trips or more are made daily.

Pupil passenger miles and average bus occupancy. Total pupil passenger miles cannot be computed directly from total bus mileage and pupils transported. Reports indicate average bus occupancy as upwards of 35 pupils, but it may rise or fall several times on a single route trip, as a bus in some instances may serve several schools along the route. Average occupancy for all bus mileage. including deadheading, may be only about 40 per cent of capacity. The National Safety Council estimate of total pupil passenger miles for 1988 is 83.2 billion.

Route trip. A route trip may represent (1) a one-way trip from the point where the first pupil boards the bus to the point where the last pupil leaves it, (2) a round trip, or (3) several separate trips ending at the same school(s). Miles per route trip reported for 15 states ranged from 15 to 60, averaging 36 miles. Pupils carried per route trip ranged from 20 to 75, averaging 52 pupils. Route trips per bus ranged from 1 to 3, averaging 1.9 trips daily.

School Bus Accidents by State

State	Total Vehicles	Annual Bus Mileage (000)	Pupils Transp. Daily	Type of School Bus Accident				Prop. Damage Only Acc.	Persons Injured	
				Total[a]	Other Veh.	Non-coll.	Fixed Obj.		Total	Pupils
U.S.	**370,000**	**4,100,000**	**22,000,000**	**32,000**	**26,000**	**600**	**3,400**	**27,000**	**14,600**	**8,400**
Alabama	...	...	...	...	...	...	...	...	...	...
Alaska	684	5,805	45,008	59	47	0	10	50	9	4
Arizona	4,500	34,108	220,000	202	187	1	4	140	409	125
Arkansas	4,300	34,535	272,000	260	...	...	...	240	92	68
California	19,412	278,749	1,094,367	2,663	1,696	140	274	2,177	809	563
Colorado	4,451	43,341	227,313	180	158	2	11	114	142	93
Connecticut	5,192	...	349,000	567	529	0	33	490	144	77
Delaware	1,281	16,561	83,525	121	111	2	6	93	98	58
Dist. of Col.	...	...	...	...	...	...	...	...	...	...
Florida	9,400	182,516	766,381	1,012	835	20	122	861	373	250
Georgia	8,878	95,175	867,979	523	393	0	94	...	240	168
Hawaii	...	...	...	...	...	...	...	...	...	...
Idaho	2,225	20,415	122,000	90	78	5	4	82	8	2
Illinois	...	...	...	...	...	...	...	...	...	...
Indiana	10,015	63,477	684,582	969	...	...	...	824	301	105
Iowa	6,926	62,133	240,198	502	360	16	110	447	158	91
Kansas	...	...	...	...	...	...	...	...	...	...
Kentucky	6,700	80,114	451,483	826	720	6	76	739	224	201
Louisiana	...	...	...	...	...	...	...	...	...	...
Maine	2,378	32,261	169,635	168	...	...	...	...	...	...
Maryland	5,416	85,853	458,372	1,155	1,056	4	81	1,018	263	156
Massachusetts	...	...	...	...	...	...	...	...	...	...
Michigan	...	...	...	...	...	...	...	...	...	...
Minnesota	10,576	122,042	651,922	679	644	4	7	501	362	172
Mississippi	5,279	42,146	365,164	445	400	0	44	423	18	16
Missouri	10,444	102,360	441,890	1,018	789	75	99	784	548	405
Montana	1,354	16,457	59,083	47	35	0	12	40	7	5
Nebraska	...	...	...	...	...	...	...	...	...	...
Nevada	1,033	13,808	59,686	193	71	0	96	167	26	17
New Hampshire	...	...	...	...	...	...	...	...	...	...
New Jersey	13,234	121,661	649,607	570	517	...	30	278	289	180
New Mexico	...	...	...	...	...	...	...	...	...	...
New York	35,000	181,000	2,000,000	576	511	1	14	365	823	605
North Carolina	13,153	119,101	694,039	1,015	840	1	7	652	1,064	661
North Dakota	1,895	25,704	47,695	...	...	...	...	...	...	...
Ohio	...	...	...	...	...	...	...	...	...	...
Oklahoma	6,706	58,750	297,377	339	296	0	17	256	137	83
Oregon	4,599	42,504	215,000	389	219	7	159	370	38	21
Pennsylvania	...	...	...	...	...	...	...	...	...	...
Rhode Island	...	...	...	...	...	...	...	...	...	...
South Carolina	5,891	66,351	443,145	797	707	6	66	773	522	356
South Dakota	1,660	18,198	44,738	68	51	2	10	61	16	8
Tennessee	6,589	65,146	549,949	830	493	12	193	681	201	170
Texas	25,000	325,000	1,020,000	1,643	1,439	9	49	1,073	1,164	369
Utah	1,576	18,202	155,355	94	88	1	2	77	27	11
Vermont	...	...	...	...	...	...	...	...	...	...
Virginia	9,776	87,620	744,065	891	814	1	67	747	344	252
Washington	6,499	72,785	365,000	312	286	6	12	196	268	116
West Virginia	3,093	41,242	270,441	401	193	6	196	401	10	6
Wisconsin	7,211	79,011	470,652	815	692	5	29	559	571	286
Wyoming	1,554	14,786	43,973	32	30	0	2	28	7	1

Source: National Safety Council survey of state departments of education and state traffic authorities. Most reports cover 1987-1988 school year or 1988 calendar year. U.S. totals are Council estimates for the calendar year 1988.

[a] Totals include additional accident types not shown separately.

[b] Procedures for estimating U.S. totals were revised for the 1985 edition. U.S. totals in this edition are not comparable to estimates prior to the 1985 edition.

Motor-Vehicle Deaths and Rates, 1913-1988

Year	No. of Deaths	No. of Vehicles (millions)	Vehicle Miles (billions)	No. of Drivers (millions)	Death Rates: Per 10,000 Motor Vehicles	Death Rates: Per 100,000,000 Vehicle Miles	Death Rates: Per 100,000 Population
1913	4,200	1.3	([a])	2.0	33.38	([a])	4.4
1914	4,700	1.8	([a])	3.0	26.65	([a])	4.8
1915	6,600	2.5	([a])	3.0	26.49	([a])	6.6
1916	8,200	3.6	([a])	5.0	22.66	([a])	8.1
1917	10,200	5.1	([a])	7.0	19.93	([a])	10.0
1918	10,700	6.2	([a])	9.0	17.37	([a])	10.3
1919	11,200	7.6	([a])	12.0	14.78	([a])	10.7
1920	12,500	9.2	([a])	14.0	13.53	([a])	11.7
1921	13,900	10.5	([a])	16.0	13.25	([a])	12.9
1922	15,300	12.3	([a])	19.0	12.47	([a])	13.9
1923	18,400	15.1	85	22.0	12.18	21.65	16.5
1924	19,400	17.6	104	26.0	11.02	18.65	17.1
1925	21,900	20.1	122	30.0	10.89	17.95	19.1
1926	23,400	22.2	141	33.0	10.54	16.59	20.1
1927	25,800	23.3	158	34.0	11.07	16.33	21.8
1928	28,000	24.7	173	37.0	11.34	16.18	23.4
1929	31,200	26.7	197	40.0	11.69	15.84	25.7
1930	32,900	26.7	206	40.0	12.32	15.97	26.7
1931	33,700	26.1	216	39.0	12.91	15.60	27.2
1932	29,500	24.4	200	36.0	12.09	14.75	23.6
1933	31,363	24.2	201	35.0	12.96	15.60	25.0
1934	36,101	25.3	216	37.0	14.27	16.71	28.6
1935	36,369	26.5	229	39.0	13.72	15.88	28.6
1936	38,089	28.5	252	42.0	13.36	15.11	29.7
1937	39,643	30.1	270	44.0	13.19	14.68	30.8
1938	32,582	29.8	271	44.0	10.93	12.02	25.1
1939	32,386	31.0	285	46.0	10.44	11.35	24.7
1940	34,501	32.5	302	48.0	10.63	11.42	26.1
1941	39,969	34.9	334	52.0	11.45	11.98	30.0
1942	28,309	33.0	268	49.0	8.58	10.55	21.1
1943	23,823	30.9	208	46.0	7.71	11.44	17.8
1944	24,282	30.5	213	45.0	7.97	11.42	18.3
1945	28,076	31.0	250	46.0	9.05	11.22	21.2
1946	33,411	34.4	341	50.0	9.72	9.80	23.9
1947	32,697	37.8	371	53.0	8.64	8.82	22.8
1948	32,259	41.1	398	55.0	7.85	8.11	22.1
1949	31,701	44.7	424	59.3	7.09	7.47	21.3
1950	34,763	49.2	458	62.2	7.07	7.59	23.0
1951	36,996	51.9	491	64.4	7.13	7.53	24.1
1952	37,794	53.3	514	66.8	7.10	7.36	24.3
1953	37,956	56.3	544	69.9	6.74	6.97	24.0
1954	35,586	58.6	562	72.2	6.07	6.33	22.1
1955	38,426	62.8	606	74.7	6.12	6.34	23.4
1956	39,628	65.2	631	77.9	6.07	6.28	23.7
1957	38,702	67.6	647	79.6	5.73	5.98	22.7
1958	36,981	68.8	665	81.5	5.37	5.56	21.3
1959	37,910	72.1	700	84.5	5.26	5.41	21.5
1960	38,137	74.5	719	87.4	5.12	5.31	21.2
1961	38,091	76.4	738	88.9	4.98	5.16	20.8
1962	40,804	79.7	767	92.0	5.12	5.32	22.0
1963	43,564	83.5	805	93.7	5.22	5.41	23.1
1964	47,700	87.3	847	95.6	5.46	5.63	25.0
1965	49,163	91.8	888	99.0	5.36	5.54	25.4
1966	53,041	95.9	930	101.0	5.53	5.70	27.1
1967	52,924	98.9	962	103.2	5.35	5.50	26.8
1968	54,862	103.1	1,016	105.4	5.32	5.40	27.5
1969	55,791	107.4	1,071	108.3	5.19	5.21	27.7
1970	54,633	111.2	1,120	111.5	4.92	4.88	26.8
1971	54,381	116.3	1,186	114.4	4.68	4.57	26.3
1972	56,278	122.3	1,268	118.4	4.60	4.43	26.9
1973	55,511	129.8	1,309	121.6	4.28	4.24	26.3
1974	46,402	134.9	1,290	125.6	3.44	3.59	21.8
1975	45,853	137.9	1,330	129.8	3.33	3.45	21.3
1976	47,038	143.5	1,412	133.9	3.28	3.33	21.6

See source and footnotes on page 71

Motor-Vehicle Deaths and Rates, 1913-1988, Cont.

					Death Rates		
Year	No. of Deaths	No. of Vehicles (millions)	Vehicle Miles (billions)	No. of Drivers (millions)	Per 10,000 Motor Vehicles	Per 100,000,000 Vehicle Miles	Per 100,000 Population
1977	49,510	148.8	1,477	138.1	3.33	3.35	22.5
1978	52,411	153.6	1,548	140.8	3.41	3.39	23.6
1979	53,524	159.6	1,529	143.3	3.35	3.50	23.8
1980	53,172	161.6	1,521	145.3	3.29	3.50	23.4
1981	51,385	164.1	1,556	147.1	3.13	3.30	22.4
1982	45,779	165.2	1,592	150.3	2.77	2.88	19.7
1983	44,452	169.4	1,657	154.2	2.62	2.68	19.0
1984	46,263	171.8	1,718	155.4	2.69	2.69	19.6
1985	45,901	177.1	1,774	156.9	2.59	2.59	19.2
1986	47,865	181.4	1,835	159.5	2.63	2.60	19.9
1987	48,400	183.9	1,924	161.8	2.63	2.52	19.9
1988	49,000	188.2	1,990	164.2	2.60	2.46	19.9
			Changes				
1978-88	**−7%**	**+23%**	**+29%**	**+17%**	**−24%**	**−27%**	**−16%**
1987-88	**+1%**	**+ 2%**	**+ 3%**	**+ 1%**	**− 1%**	**− 2%**	**0%**

Source: Deaths from National Center for Health Statistics except 1964, 1987 (revised) and 1988 (preliminary), which are National Safety Council estimates based on data from state traffic authorities. See page 31 for comparability. Motor-vehicle registrations, mileage and drivers from Federal Highway Administration.

[a] Mileage data inadequate prior to 1923.

Estimating motor-vehicle accident costs

National Safety Council estimates[a] of the per case costs of motor vehicle-related deaths, injuries, and property damage accidents may be used by a community or state to estimate the cost of motor-vehicle accidents that occurred in 1988 within its jurisdiction. Included are the four calculable economic loss components (see pages 3-4), which are wage loss, medical expense, insurance administration cost, and motor-vehicle property damage. The estimated 1988 cost per case of these items is given below.

Death	**$290,000**
Nonfatal disabling injury	**$13,100**
Incapacitating injury	*$30,600*
Nonincapacitating evident injury	*$ 7,500*
Possible injury	*$ 1,800*
Property damage accident (including minor injuries)	**$1,700**

Cost-benefit analysis. The figures above are appropriate for measuring the economic loss to a community resulting from past motor-vehicle accidents. They should not be used, however, in computing the dollar value of future benefits due to traffic safety measures because they do not include the value of a person's natural desire to live longer or to protect the quality of one's life. That is, the economic loss estimates do not include what people are willing to pay for improved safety. Recent work has been done to create the necessary theoretical groundwork[b] and empirical valuation[c] of injury costs under the "willingness to pay" concept. These estimates should be used for cost-benefit analyses wherever feasible.

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[a] National Safety Council. *Estimating the cost of accidents, 1988.* Chicago: Author, 1989.

[b] Miller, T. R. *Benefit-cost analyses of health and safety: conceptual and empirical issues.* Working paper. December 1986. Washington, DC: The Urban Institute.

[c] Rollins, J. B. and McFarland, W. F. Costs of motor vehicle accidents and injuries. In *Traffic Accident Analysis, Alcohol Involvement, and Evaluation of Highway Improvements.* Transportation Research Record 1068. Washington, DC: Transportation Research Board, National Research Council, 1986.

Motor-Vehicle Deaths by Type of Accident, 1913-1988

Year	TOTAL DEATHS	Deaths from Collision with—							Deaths from Non-collision Accidents	Non-traffic Deaths[a]
		Pedestrians	Other Motor Vehicles	Railroad Trains	Street Cars	Pedalcycles	Animal-drawn Veh. or Animal	Fixed Objects		
1913	4,200	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1914	4,700	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1915	6,600	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1916	8,200	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1917	10,200	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1918	10,700	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1919	11,200	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1920	12,500	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1921	13,900	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1922	15,300	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1923	18,400	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1924	19,400	(b)	(b)	1,130	410	(b)	(b)	(b)	(b)	(c)
1925	21,900	(b)	(b)	1,410	560	(b)	(b)	(b)	(b)	(c)
1926	23,400	(b)	(b)	1,730	520	(b)	(b)	(b)	(b)	(c)
1927	25,800	10,820	3,430	1,830	520	(b)	(b)	(b)	(b)	(c)
1928	28,000	11,420	4,310	2,140	570	(b)	(b)	540	8,070	(c)
1929	31,200	12,250	5,400	2,050	530	(b)	(b)	620	9,380	(c)
1930	32,900	12,900	5,880	1,830	480	(b)	(b)	720	9,970	(c)
1931	33,700	13,370	6,820	1,710	440	(b)	(b)	870	9,570	(c)
1932	29,500	11,490	6,070	1,520	320	350	400	800	8,500	(c)
1933	31,363	12,840	6,470	1,437	318	400	310	900	8,680	(c)
1934	36,101	14,480	8,110	1,457	332	500	360	1,040	9,820	(c)
1935	36,369	14,350	8,750	1,587	253	450	250	1,010	9,720	(c)
1936	38,089	15,250	9,500	1,697	269	650	250	1,060	9,410	(c)
1937	39,643	15,500	10,320	1,810	264	700	200	1,160	9,690	(c)
1938	32,582	12,850	8,900	1,490	165	720	170	940	7,350	(c)
1939	32,386	12,400	8,700	1,330	150	710	200	1,000	7,900	(c)
1940	34,501	12,700	10,100	1,707	132	750	210	1,100	7,800	(c)
1941	39,969	13,550	12,500	1,840	118	910	250	1,350	9,450	(c)
1942	28,309	10,650	7,300	1,754	124	650	240	850	6,740	(c)
1943	23,823	9,900	5,300	1,448	171	450	160	700	5,690	(c)
1944	24,282	9,900	5,700	1,663	175	400	140	700	5,600	(c)
1945	28,076	11,000	7,150	1,703	163	500	130	800	6,600	(c)
1946	33,411	11,600	9,400	1,703	174	540	130	950	8,900	(c)
1947	32,697	10,450	9,900	1,736	102	550	150	1,000	8,800	(c)
1948	32,259	9,950	10,200	1,474	83	500	100	1,000	8,950	(c)
1949	31,701	8,800	10,500	1,452	56	550	140	1,100	9,100	838
1950	34,763	9,000	11,650	1,541	89	440	120	1,300	10,600	900
1951	36,996	9,150	13,100	1,573	46	390	100	1,400	11,200	966
1952	37,794	8,900	13,[illegible]00	1,429	32	430	130	1,450	11,900	970
1953	37,955	8,750	13,400	1,506	26	420	120	1,500	12,200	1,026
1954	35,586	8,000	12,800	1,289	28	380	90	1,500	11,500	1,004
1955	38,426	8,200	14,500	1,490	15	410	90	1,600	12,100	989
1956	39,628	7,900	15,200	1,377	11	440	100	1,600	13,000	888
1957	38,702	7,850	15,400	1,376	13	460	80	1,700	11,800	1,016
1958	36,981	7,650	14,200	1,316	9	450	80	1,650	11,600	929
1959	37,910	7,850	14,900	1,202	6	480	70	1,600	11,800	948
1960	38,137	7,850	14,800	1,368	5	460	30	1,700	11,900	995
1961	38,091	7,650	14,700	1,267	5	490	80	1,700	12,200	1,065
1962	40,804	7,900	16,400	1,245	3	500	90	1,750	12,900	1,029
1963	43,564	8,200	17,600	1,385	10	580	80	1,900	13,800	990
1964	47,700	9,000	19,600	1,580	5	710	100	2,100	14,600	1,123
1965	49,163	8,900	20,800	1,556	5	680	120	2,200	14,900	1,113
1966	53,041	9,400	22,200	1,800	2	740	100	2,500	16,300	1,108
1967	52,924	9,400	22,000	1,620	3	750	100	2,350	16,700	1,165
1968	54,862	9,900	22,400	1,570	4	790	100	2,700	17,400	1,061
1969	55,791	10,100	23,700	1,495	2	800	100	3,900[d]	15,700[d]	1,155
1970	54,633	9,900	23,200	1,459	3	780	100	3,800	15,400	1,140
1971	54,381	9,900	23,100	1,378	2	800	100	3,800	15,300	1,015
1972	56,278	10,300	23,900	1,260	2	1,000	100	3,900	15,800	1,064
1973	55,511	10,200	23,600	1,194	2	1,000	100	3,800	15,600	1,164
1974	46,402	8,500	19,700	1,209	1	1,000	100	3,100	12,800	1,088
1975	45,853	8,400	19,550	979	1	1,000	100	3,130	12,700	1,033
1976	47,038	8,600	20,100	1,033	2	1,000	100	3,200	13,000	1,026

See source and footnotes on page 73.

Motor-Vehicle Deaths by Type of Accident, 1913-1988, Cont.

Year	TOTAL DEATHS	Deaths from Collision with—							Deaths from Non-collision Accidents	Non-traffic Deaths[a]
		Pedestrians	Other Motor Vehicles	Railroad Trains	Street Cars	Pedalcycles	Animal-drawn Veh. or Animal	Fixed Objects		
1977	49,510	9,100	21,200	902	3	1,100	100	3,400	13,700	1,053
1978	52,411	9,600	22,400	986	1	1,200	100	3,600	14,500	1,074
1979	53,524	9,800	23,100	826	1	1,200	100	3,700	14,800	1,271
1980	53,172	9,700	23,000	739	1	1,200	100	3,700	14,700	1,242
1981	51,385	9,400	22,200	668	1	1,200	100	3,600	14,200	1,189
1982	45,779	8,400	19,800	554	1	1,100	100	3,200	12,600	1,066
1983	44,452	8,200	19,200	520	1	1,100	100	3,100	12,200	1,024
1984	46,263	8,500	20,000	630	0	1,100	100	3,200	12,700	1,055
1985	45,901	8,500	19,900	538	2	1,100	100	3,200	12,600	1,079
1986	47,865	8,900	20,800	574	2	1,100	100	3,300	13,100	998
1987	48,400	8,900	20,900	500	([e])	1,200	100	3,100	13,700	1,000
1988	49,000	8,800	21,200	600	([e])	1,100	100	3,300	13,900	1,000
				Changes in Deaths						
1978-88	**– 7%**	**–8%**	**– 5%**	**– 39%**	...	**–8%**	**0%**	**– 8%**	**– 4%**	**–7%**
1987-88	**+1%**	**–1%**	**+1%**	**+20%**	...	**–8%**	**0%**	**+6%**	**+1%**	**0%**

Source: Total deaths from National Center for Health Statistics except 1964 and 1987-1988 which are National Safety Council estimates (1988 preliminary, 1987 revised) based on data from state traffic authorities and Federal Highway Administration. Most totals by type are estimated and may not add to the total deaths. See page 31 for comparability.

[a] See definition on inside back cover. Nontraffic deaths are included in the appropriate accident type totals in the table; in 1986, 41 per cent of the specified nontraffic deaths were pedestrians.

[b] Insufficient data for approximations.

[c] Data not available for these years.

[d] 1969 and subsequent totals are not comparable to previous years.

[e] Not available.

Holidays and alcohol

About 58 per cent of holiday fatalities in 1986 were alcohol-related compared to 52 per cent during nonholidays, according to estimates made by the National Highway Traffic Safety Administration (NHTSA). The proportion of alcohol-related deaths varied from 50.0 per cent on New Year's Eve to 64.7 per cent on New Year's Day. The proportion of traffic deaths due to persons with a BAC of .10% or more, i.e. legally drunk, was also consistently higher on holidays than on nonholidays. For four of the seven holidays, the proportion was also greater than the normal weekend alcohol involvement.

Color of car

During the early 1970's, engineers at Mercedes-Benz in Germany conducted tests in conjunction with paint manufacturers to determine the relative visibility of car colors in a variety of conditions (fog, twilight, brilliant sun) and against a variety of backgrounds (snow, dusty roads, green open country). Of the most commonly available car colors; white ranked the highest in all-around visibility, except in situations of completely snow-covered roads or white sand. In such extremes, bright yellow and bright orange ranked second and third respectively in visibility. The least visible car color was dark green.

Size of vehicle

According to analysis of police-reported accident files in Maryland and North Carolina during 1974-1979 by the Insurance Institute for Highway Safety, in Maryland, drivers of small cars were almost two and half times as likely as drivers of the largest passenger cars to be killed or seriously injured in head-on crashes; in North Carolina, almost twice as likely.

Source: Insurance Institute for Highway Safety. *Status Report*, January 5, 1982, *17*(1), 8.

Motor-Vehicle Deaths and Death Rates by Age, 1913-1988

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
DEATHS								
1913	4,200	300	1,100	600	1,100	800	300	
1914	4,700	300	1,200	700	1,200	900	400	
1915	6,600	400	1,500	1,000	1,700	1,400	600	
1916	8,200	600	1,800	1,300	2,100	1,700	700	
1917	10,200	700	2,400	1,400	2,700	2,100	900	
1918	10,700	800	2,700	1,400	2,500	2,300	1,000	
1919	11,200	900	3,000	1,400	2,500	2,100	1,300	
1920	12,500	1,000	3,300	1,700	2,800	2,300	1,400	
1921	13,900	1,100	3,400	1,800	3,300	2,700	1,600	
1922	15,300	1,100	3,500	2,100	3,700	3,100	1,800	
1923	18,400	1,200	3,700	2,800	4,600	3,900	2,200	
1924	19,400	1,400	3,800	2,900	4,700	4,100	2,500	
1925	21,900	1,400	3,900	3,600	5,400	4,800	2,800	
1926	23,400	1,400	3,900	3,900	5,900	5,200	3,100	
1927	25,800	1,600	4,000	4,300	6,600	5,800	3,500	
1928	28,000	1,600	3,800	4,900	7,200	6,600	3,900	
1929	31,200	1,600	3,900	5,700	8,000	7,500	4,500	
1930	32,900	1,500	3,600	6,200	8,700	8,000	4,900	
1931	33,700	1,500	3,600	6,300	9,100	8,200	5,000	
1932	29,500	1,200	2,900	5,100	8,100	7,400	4,800	
1933	31,363	1,274	3,121	5,649	8,730	7,947	4,642	
1934	36,101	1,210	3,182	6,561	10,232	9,530	5,386	
1935	36,369	1,253	2,951	6,755	10,474	9,562	5,374	
1936	38,089	1,324	3,026	7,184	10,807	10,089	5,659	
1937	39,643	1,303	2,991	7,800	10,877	10,475	6,197	
1938	32,582	1,122	2,511	6,016	8,772	8,711	5,450	
1939	32,386	1,192	2,339	6,318	8,917	8,292	5,328	
1940	34,501	1,176	2,584	6,846	9,362	8,882	5,651	
1941	39,969	1,378	2,838	8,414	11,069	9,829	6,441	
1942	28,309	1,069	1,991	5,932	7,747	7,254	4,316	
1943	23,823	1,132	1,959	4,522	6,454	5,996	3,760	
1944	24,282	1,203	2,093	4,561	6,514	5,982	3,929	
1945	28,076	1,290	2,386	5,358	7,578	6,794	4,670	
1946	33,411	1,568	2,508	7,445	8,955	7,532	5,403	
1947	32,697	1,502	2,275	7,251	8,775	7,468	5,426	
1948	32,259	1,635	2,337	7,218	8,702	7,190	3,173	2,004
1949	31,701	1,667	2,158	6,772	8,892	7,073	3,116	2,023
1950	34,763	1,767	2,152	7,600	10,214	7,728	3,264	2,038
1951	36,996	1,875	2,300	7,713	11,253	8,276	3,444	2,135
1952	37,794	1,951	2,295	8,115	11,380	8,463	3,472	2,118
1953	37,956	2,019	2,368	8,169	11,302	8,318	3,508	2,271
1954	35,586	1,864	2,332	7,571	10,521	7,848	3,247	2,203
1955	38,426	1,875	2,406	8,656	11,448	8,372	3,455	2,214
1956	39,628	1,770	2,640	9,169	11,551	8,573	3,657	2,268
1957	38,702	1,785	2,604	8,667	11,230	8,545	3,560	2,311
1958	36,981	1,791	2,710	8,328	10,414	7,922	3,535	2,221
1959	37,910	1,842	2,719	8,969	10,358	8,263	3,487	2,272
1960	38,137	1,953	2,814	9,117	10,189	8,294	3,457	2,313
1961	38,091	1,891	2,802	9,088	10,212	8,267	3,467	2,364
1962	40,804	1,903	3,028	10,157	10,701	8,812	3,696	2,507
1963	43,564	1,991	3,063	11,123	11,356	9,506	3,786	2,739
1964	47,700	2,120	3,430	12,400	12,500	10,200	4,150	2,900
1965	49,163	2,059	3,526	13,395	12,595	10,509	4,077	3,002
1966	53,041	2,182	3,869	15,298	13,282	11,051	4,217	3,142
1967	52,924	2,067	3,845	15,646	12,987	10,902	4,285	3,192
1968	54,862	1,987	4,105	16,543	13,602	11,031	4,261	3,333
1969	55,791	2,077	4,045	17,443	13,868	11,012	4,210	3,136
1970	54,633	1,915	4,159	16,720	13,446	11,099	4,084	3,210
1971	54,381	1,885	4,256	17,103	13,307	10,471	4,108	3,251
1972	56,278	1,896	4,258	17,942	13,758	10,836	4,138	3,450
1973	55,511	1,998	4,124	18,032	14,013	10,216	3,892	3,236
1974	46,402	1,546	3,332	15,905	11,834	8,159	3,071	2,555
1975	45,853	1,576	3,286	15,672	11,969	7,663	3,047	2,640
1976	47,038	1,532	3,175	16,650	12,112	7,770	3,082	2,717

See source and footnotes on page 76.

Motor-Vehicle Deaths and Death Rates by Age, 1913-1988, Cont.

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
1977	49,510	1,472	3,142	18,092	13,031	8,000	3,060	2,713
1978	52,411	1,551	3,130	19,164	14,574	8,048	3,217	2,727
1979	53,524	1,461	2,952	19,369	15,658	8,162	3,171	2,751
1980	53,172	1,426	2,747	19,040	16,133	8,022	2,991	2,813
1981	51,385	1,256	2,575	17,363	16,447	7,818	3,090	2,836
1982	45,779	1,300	2,301	15,324	14,469	6,879	2,825	2,681
1983	44,452	1,233	2,241	14,289	14,323	6,690	2,827	2,849
1984	46,263	1,138	2,263	14,738	15,036	6,954	3,020	3,114
1985	45,901	1,195	2,319	14,277	15,034	6,885	3,014	3,177
1986	47,865	1,188	2,350	15,227	15,844	6,799	3,096	3,361
1987	48,400	1,100	2,400	14,800	16,300	7,100	3,200	3,500
1988	49,000	1,200	2,500	14,600	16,400	7,400	3,200	3,700
Changes in Deaths								
1978 to 1988	**−7%**	**−23%**	**−20%**	**−24%**	**+13%**	**−8%**	**−1%**	**+36%**
1987 to 1988	**+1%**	**+ 9%**	**+ 4%**	**− 1%**	**+ 1%**	**+4%**	**0%**	**+ 6%**
DEATH RATES[b]								
1913	4.4	2.3	5.5	3.1	3.8	5.3	8.5	
1914	4.8	2.5	5.7	3.5	4.1	6.2	9.3	
1915	6.6	3.5	7.3	5.0	5.6	8.8	13.5	
1916	8.1	4.7	8.6	6.0	7.0	10.7	15.8	
1917	10.0	5.6	10.6	7.4	8.6	12.6	18.6	
1918	10.3	6.9	12.3	7.7	8.3	13.7	21.2	
1919	10.7	7.5	13.9	7.5	8.1	12.4	24.1	
1920	11.7	8.6	14.6	8.7	8.8	13.5	27.0	
1921	12.9	9.0	14.5	9.2	10.2	15.4	31.0	
1922	13.9	9.2	15.0	10.8	11.1	17.2	34.9	
1923	16.5	9.7	15.6	13.4	13.6	21.0	40.5	
1924	17.1	11.1	16.1	14.3	13.7	21.8	43.7	
1925	19.1	11.0	15.6	17.2	15.8	25.0	48.9	
1926	20.1	11.0	15.9	18.6	17.1	26.3	51.4	
1927	21.8	12.8	16.0	20.0	18.8	28.9	56.9	
1928	23.4	12.7	15.5	21.9	20.2	32.4	62.2	
1929	25.7	13.4	15.6	25.6	22.3	35.6	68.6	
1930	26.7	13.0	14.7	27.4	23.9	37.0	72.5	
1931	27.2	13.3	14.5	27.9	24.8	37.4	70.6	
1932	23.6	11.3	12.0	22.6	22.0	32.9	63.6	
1933	25.0	12.0	12.7	24.8	23.4	34.7	63.1	
1934	28.6	11.7	13.0	28.6	27.2	40.7	71.0	
1935	28.6	12.3	12.2	29.2	27.6	39.9	68.9	
1936	29.7	13.2	12.6	30.8	28.2	41.3	70.5	
1937	30.8	13.0	12.7	33.2	28.2	42.0	75.1	
1938	25.1	11.0	10.8	25.4	22.5	34.3	64.1	
1939	24.7	11.2	10.4	26.5	22.6	32.2	60.2	
1940	26.1	11.1	11.5	28.7	23.5	33.9	62.1	
1941	30.0	12.7	12.6	35.7	27.5	37.0	68.6	
1942	21.1	9.5	8.8	25.8	19.2	26.9	44.5	
1943	17.8	9.4	8.6	20.5	16.1	21.9	37.6	
1944	18.3	9.6	9.1	22.5	16.6	21.6	38.2	
1945	21.2	10.0	10.3	27.8	19.7	24.2	44.1	
1946	23.9	11.9	10.8	34.4	21.1	26.4	49.6	
1947	22.8	10.5	9.7	32.8	20.3	25.7	48.2	
1948	22.1	11.0	9.8	32.5	19.8	24.3	39.6	55.4
1949	21.3	10.7	9.0	30.7	19.9	23.4	37.8	53.9
1950	23.0	10.8	8.8	34.5	22.5	25.1	38.8	52.4
1951	24.1	10.9	9.2	36.0	24.7	26.5	39.5	53.0

See source and footnotes on page 76

Motor-Vehicle Deaths and Death Rates by Age, 1913-1988, Cont.

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
1952	24.3	11.3	8.7	38.6	24.7	26.7	38.5	50.8
1953	24.0	11.5	8.5	39.1	24.5	25.8	37.7	52.6
1954	22.1	10.4	8.1	36.2	22.6	24.0	33.9	49.0
1955	23.4	10.2	8.0	40.9	24.5	25.2	35.1	47.1
1956	23.7	9.4	8.4	42.9	24.6	25.3	36.2	46.4
1957	22.7	9.2	8.0	39.7	23.9	24.8	34.4	45.5
1958	21.3	9.1	8.1	37.0	22.3	22.6	33.5	42.3
1959	21.5	9.1	7.9	38.2	22.2	23.2	32.3	41.8
1960	21.2	9.6	7.9	37.7	21.7	22.9	31.3	41.1
1961	20.8	9.2	7.6	36.5	21.8	22.5	30.7	40.5
1962	22.0	9.3	8.1	38.4	22.9	23.7	32.2	41.7
1963	23.1	9.8	8.0	40.0	24.3	25.2	32.6	44.3
1964	25.0	10.5	8.8	42.6	26.8	26.6	35.5	45.2
1965	25.4	10.4	8.9	44.2	27.0	27.0	34.6	45.4
1966	27.1	11.4	9.7	48.7	28.5	27.9	35.4	46.2
1967	26.8	11.2	9.5	48.4	27.8	27.1	35.6	45.4
1968	27.5	11.1	10.1	49.8	28.8	27.0	35.1	46.0
1969	27.7	12.0	9.9	50.7	29.1	26.6	34.3	42.0
1970	26.8	11.2	10.2	46.7	27.9	26.4	32.7	42.2
1971	26.3	10.9	10.5	45.7	27.4	24.7	32.4	41.3
1972	26.9	11.1	10.7	47.1	27.4	25.3	32.0	42.6
1973	26.3	11.9	10.5	46.3	27.2	23.6	29.4	39.1
1974	21.8	9.4	8.6	40.0	22.4	18.8	22.6	30.1
1975	21.3	9.8	8.6	38.7	22.1	17.5	21.9	30.1
1976	21.6	9.8	8.4	40.3	21.8	17.6	21.6	30.1
1977	22.5	9.5	8.5	43.3	22.7	18.1	20.9	29.3
1978	23.6	9.9	8.6	45.4	24.6	18.2	21.5	28.7
1979	23.8	9.1	8.3	45.6	25.6	18.4	20.7	28.1
1980	23.4	8.7	7.9	44.8	25.5	18.0	19.1	28.0
1981	22.4	7.4	7.5	41.2	25.2	17.5	19.4	27.5
1982	19.7	7.5	6.7	36.9	21.4	15.4	17.4	25.2
1983	19.0	7.0	6.6	35.1	20.5	15.0	17.1	26.1
1984	19.6	6.4	6.7	36.7	20.9	15.5	18.0	27.7
1985	19.2	6.6	6.8	36.1	20.4	15.3	17.7	27.6
1986	19.9	6.5	6.9	39.0	20.9	15.1	17.9	28.4
1987	19.9	6.0	7.0	38.7	21.0	15.7	18.1	28.8
1988	19.9	6.5	7.2	39.0	20.8	16.1	17.9	29.0
				Changes in Rates				
1978 to 1988	**−16%**	**−34%**	**−16%**	**−14%**	**−15%**	**−12%**	**−17%**	**+1%**
1987 to 1988	**0%**	**+ 8%**	**+ 3%**	**+ 1%**	**− 1%**	**+ 3%**	**− 1%**	**+1%**

Source: 1913 to 1932 calculated from National Center for Health Statistics data for registration states; 1933 to 1963, 1965 to 1986 are NCHS totals. All other figures are National Safety Council estimates: 1988 preliminary, 1987 revised. See page 31 for comparability.

[a] Includes "age unknown". In 1986 these deaths numbered 47.

[b] Death rates are deaths per 100,000 population in each age group.

Emergency Vehicles Involved in Accidents

About 15,200 police cars were involved in motor-vehicle accidents in 1986 according to data from the National Accident Sampling System file of the National Highway Traffic Safety Administration (NHTSA). Other emergency vehicles involved in accidents in 1986 included about 450 fire trucks and 2,300 ambulances.

In 1987, 102 police cars were involved in fatal motor-vehicle accidents according to NHTSA's Fatal Accident Reporting System (FARS) file. Also involved in 1987 fatal accidents were 32 ambulances and 17 fire trucks. Data from the 1986 FARS file show that 84 police cars, 30 ambulances, and 21 fire trucks were involved in fatal accidents during 1986.

Motor-Vehicle Deaths by Type and Location, 1943-1988

Year	TOTAL DEATHS[a]	Mileage Death Rate[b]	Deaths from Collisions with—						Deaths from Non-collision Accidents
			Pedestrians	Other Motor Vehicles	Railroad Trains	Pedalcycles	All Other Vehicles	Fixed Objects	
				URBAN					
1943-1947 avg.	11,370	8.1	6,920	1,640	900	(c)	(c)	240	1,190
1948-1952 avg.	10,430	4.9	5,770	1,830	740	(c)	(c)	390	1,390
1953-1957 avg.	9,730	3.6	5,190	1,980	540	(c)	(c)	500	1,270
1958-1962 avg.	10,450	3.2	4,900	2,650	450	(c)	(c)	650	1,600
1965	15,060	3.4	5,750	4,700	480	(c)	(c)	950	2,800
1966	16,300	3.5	6,000	5,300	520	(c)	(c)	1,000	3,100
1967	16,620	3.4	6,100	5,300	500	(c)	(c)	1,050	3,300
1968	17,360	3.4	6,500	5,500	470	(c)	(c)	1,200	3,300
1969	17,890	3.3	6,700	5,900	490	(c)	(c)	1,450[d]	3,000[d]
1970	17,520	3.0	6,600	5,800	480	340	3	1,400	2,900
1971	17,510	2.9	6,600	5,800	450	350	2	1,400	2,900
1972	18,210	2.7	6,800	5,900	320	600	2	1,900	2,600
1973	18,040	2.6	6,700	5,800	400	600	2	1,900	2,600
1974	16,100	2.3	5,700	5,400	400	600	1	1,900	2,100
1975	16,460	2.3	6,100	6,000	460	600	1	1,800	1,500
1976	16,750	2.1	5,900	6,000	500	550	2	1,800	2,000
1977	17,700	2.2	6,200	6,400	400	600	3	1,900	2,200
1978	18,600	2.2	6,100	6,500	400	800	1	2,100	2,700
1979	19,700	2.3	7,100	6,400	400	700	1	2,100	3,000
1980	19,500	2.2	7,000	6,800	300	800	1	1,900	2,700
1981	19,400	2.2	6,900	6,800	300	800	1	1,900	2,700
1982	17,300	1.9	6,200	6,100	200	700	1	1,700	2,400
1983	16,250	1.7	5,900	5,800	220	700	1	1,700	2,200
1984	17,130	1.7	6,200	6,400	230	700	0	1,800	1,800
1985	16,600	1.6	6,200	5,800	200	700	2	1,800	1,900
1986	17,300	1.6	6,700	6,800	100	800	2	1,800	1,100
1987	17,500	1.5	6,900	6,600	100	800	(c)	1,600	1,500
1988	17,400	1.5	6,600	6,800	100	600	(c)	2,100	1,200
1987-88 Change	**−1%**	**0%**	**−4%**	**+3%**	**0%**	**−25%**	...	**+31%**	**−20%**
				RURAL					
1943-1947 avg.	17,080	12.6	3,650	5,850	760	(c)	(c)	580	5,930
1948-1952 avg.	24,270	10.0	3,390	9,960	750	(c)	(c)	860	8,950
1953-1957 avg.	28,320	8.6	2,950	12,280	860	(c)	(c)	1,080	10,850
1958-1962 avg.	27,900	7.2	2,900	12,350	830	(c)	(c)	1,030	10,500
1965	34,100	7.8	3,150	16,100	1,080	(c)	(c)	1,250	12,100
1966	36,740	8.0	3,400	16,900	1,280	(c)	(c)	1,500	13,200
1967	36,300	7.6	3,300	16,700	1,120	(c)	(c)	1,300	13,400
1968	37,500	7.5	3,400	16,900	1,100	(c)	(c)	1,500	14,100
1969	37,900	7.2	3,400	17,800	1,000	(c)	(c)	2,450[d]	12,700[d]
1970	37,120	6.8	3,300	17,400	980	440	100	2,400	12,500
1971	36,870	6.4	3,300	17,300	920	450	100	2,400	12,400
1972	38,150	6.5	3,500	18,000	950	400	100	2,000	13,200
1973	37,470	6.2	3,500	17,800	800	400	100	1,900	13,000
1974	30,300	5.2	2,800	14,300	800	400	100	1,200	10,700
1975	29,390	4.9	2,300	13,550	520	400	100	1,300	11,200
1976	30,320	4.8	2,700	14,100	530	450	100	1,400	11,000
1977	31,800	4.9	2,900	14,800	500	500	100	1,500	11,500
1978	33,800	4.9	3,500	15,900	600	400	100	1,500	11,800
1979	33,800	5.0	2,700	16,700	400	500	100	1,600	11,800
1980	33,600	5.0	2,700	16,200	400	400	100	1,800	12,000
1981	32,000	4.7	2,500	15,400	400	400	100	1,700	11,500
1982	28,500	4.1	2,200	13,700	400	400	100	1,500	10,200
1983	27,900	4.0	2,300	13,400	300	400	100	1,400	10,000
1984	29,100	4.0	2,300	13,600	400	400	100	1,400	10,900
1985	29,340	4.0	2,300	14,100	340	400	100	1,400	10,700
1986	30,570	4.1	2,200	14,000	470	300	100	1,500	12,000
1987	30,900	4.0	2,000	14,300	400	400	100	1,500	12,200
1988	31,600	3.9	2,200	14,400	500	500	100	1,200	12,700
1987-88 Change	**+2%**	**−3%**	**+10%**	**+1%**	**+25%**	**+25%**	**0%**	**−20%**	**+4%**

Source: National Safety Council estimates based on reports from National Center for Health Statistics, Federal Railroad Administration, Federal Highway Administration and city and state traffic authorities; 1986-1987 revised; 1988 preliminary.

[a] Totals may not equal sums of the types due to rounding.

[b] Deaths per 100,000,000 vehicle miles.

(c) Not available.

[d] Data are not comparable to previous years shown due to classification change in 1969.

Motor-Vehicle Traffic Deaths, Cities, 1987-1988

City		1988	1987	1988 Rates	
				Pop.	Reg.
All Cities		**7,721**	**7,656**	**11.2**	**1.6**
(460 Reporting Cities Over 25,000 Population)					
Group I—Over 1,000,000 Population (6 Cities)					
All Cities		**1,799**	**1,710**	**10.0**	**1.6**
Los Angeles,	Cal.	397	392	12.2	1.6
Chicago,	Ill.	309	263	10.3	2.3
Detroit,	Mich.	159	134	14.6	2.4
New York,	N. Y.	567	625	7.8	1.4
Philadelphia,	Pa.	149	120	9.1	1.9
Houston,	Tex.	218	176	12.6	1.5
Group II—750,000-1,000,000 Population (2 Cities)					
All Cities		**292**	**302**	**15.2**	**1.9**
Dallas,	Tex.	165	176	16.4	2.0
San Antonio;	"	127	126	13.9	1.7
Group III—500,000-750,000 Population (14 Cities)					
All Cities		**1,064**	**982**	**11.7**	**1.8**
Phoenix,	Ariz.	163	130	18.2	2.6
San Francisco,	Cal.	71	44	9.5	1.2
San Jose,	"	64	58	9.0	1.2
Washington,	D.C.	63	56	10.1	2.3
Jacksonville,	Fla.	124	128	20.3	2.6
Honolulu,	Haw.	84	75	11.6	2.4
Indianapolis,	Ind.	41	44	5.7	0.7
New Orleans,	La.	75	76	13.5	2.7
Boston,	Mass.	55	41	9.6	1.4
St. Louis,	Mo.	42	39	8.3	1.2
Cleveland,	Ohio	69	79	11.6	2.0
Columbus,	"	73	69	12.9	2.1
Memphis,	Tenn.	100	92	15.3	2.3
Milwaukee,	Wis.	40	51	6.6	0.8
Group IV—350,000-500,000 Population (15 Cities)					
All Cities		**840**	**870**	**13.9**	**1.8**
Denver,	Colo.	41	47	8.6	0.9
Atlanta,	Ga.	80	95	19.7	2.3
Minneapolis,	Minn.	24	19	6.8	1.0
Kansas City,	Mo.	78	79	17.1	2.3
Omaha,	Neb.	33	35	9.0	1.1
Buffalo,	N. Y.	25	21	7.0	0.9
Cincinnati,	Ohio	36	32	9.0	1.3
Toledo,	"	37	48	10.5	1.4
Oklahoma City,	Okla.	66	72	18.0	2.3
Portland,	Ore.	66	76	18.1	2.1
Pittsburgh,	Pa.	25	26	5.9	1.0
Nashville,	Tenn.	103	96	24.2	3.8
El Paso,	Tex.	91	70	21.4	2.8
Fort Worth,	"	76	102	20.7	2.6
Seattle,	Wash.	59	52	12.2	1.2
Group V—200,000-350,000 Population (27 Cities)					
All Cities		**920**	**1,002**	**12.6**	**1.6**
Birmingham,	Ala.	44	40	15.7	2.0
Mobile,	"	23	20	11.1	1.2
Anchorage,	Alas.	24	14	11.9	1.8
Tucson,	Ariz.	47	52	14.2	1.9
Anaheim,	Cal.	34	26	16.4	1.8
Long Beach,	"	43	54	12.7	1.7
Oakland,	"	40	42	11.8	1.8
Sacramento,	"	54	52	19.7	2.3
Colorado Sprgs.,	Colo.	25	31	12.1	1.4
Miami,	Fla.	81	75	23.3	2.6
St. Petersburg,	"	29	43	12.6	1.3
Tampa,	"	63	50	23.8	2.6
Wichita,	Kans.	31	31	11.6	1.2
Baton Rouge,	La.	29	24	9.3	1.1
Shreveport,	"	16	24	7.9	0.9
St. Paul,	Minn.	15	15	5.7	0.8
Newark,	N. J.	36	36	11.5	2.0
Albuquerque,	N. M.	46	66	15.6	2.4
Rochester,	N. Y.	17	21	7.0	1.0
Charlotte,	N. C.	36	41	12.0	2.1
[illegible],	Ohio	20	30	8.4	0.9
Tulsa,	Okla.	30	34	9.0	1.0
Austin,	Tex.	45	56	14.1	2.5
Corpus Christi,	"	24	42	11.2	1.4
Norfolk,	Va.	24	21	8.6	1.6
Richmond,	"	18	21	8.2	1.2
Virginia Beach,	"	26	41	10.6	1.1
Group VI—100,000-200,000 Population (74 Cities)					
All Cities		**1,185**	**1,238**	**11.7**	**1.4**
Huntsville,	Ala.	29	28	20.4	2.1
Montgomery,	"	23	23	14.5	1.6
Mesa,	Ariz.	29	29	24.6	3.3
Berkeley,	Cal.	7	3	6.8	1.0
Fremont,	"	10	7	8.2	0.8
Fullerton,	"	8	11	7.9	1.0
Garden Grove,	"	6	12	4.9	0.6
Glendale,	"	11	10	8.0	0.9
Hntngtn. Bch.,	"	15	12	8.9	1.1
Oxnard,	"	13	10	11.2	1.4
Riverside,	"	30	28	19.1	2.0
San Bernardino,	"	21	35	20.2	2.1
Santa Ana,	"	31	31	16.7	2.1
Torrance,	"	16	13	12.4	1.3
Aurora,	Colo.	15	19	10.6	1.1
Pueblo,	"	10	14	9.0	0.9
Bridgeport,	Conn.	9	17	6.3	0.8
Hartford,	"	17	33	12.3	1.9
New Haven,	"	23	15	18.3	2.2
Stamford,	"	5	12	4.9	0.6
Waterbury,	"	25	17	24.5	2.8
Fort Lauderdale,	Fla.	37	39	24.8	2.7
Hialeah,	"	24	15	19.1	2.0
Orlando,	"	14	20	11.6	1.3
Macon,	Ga.	19	26	15.7	1.8
Savannah,	"	24	9	17.7	1.9
Peoria,	Ill.	17	5	13.8	2.0
Rockford,	"	15	10	10.7	1.4
Evansville,	Ind.	12	14	8.9	1.0
Fort Wayne,	"	23	29	12.7	1.8
South Bend,	"	10	13	8.8	1.0
Cedar Rapids,	Ia.	9	9	8.4	1.0
Kansas City,	Kans.	19	20	11.6	1.6
Topeka,	"	13	17	10.6	1.1
Lexington,	Ky.	37	35	19.4	2.3
Ann Arbor,	Mich.	0	0	0.0	0.0
Flint,	"	20	22	12.5	1.3
Grand Rapids,	"	14	17	7.7	1.1
Lansing,	"	11	15	8.8	0.9

Motor-Vehicle Traffic Deaths, Cities, 1987-1988, Cont.

City		1988	1987	1988 Rates	
				Pop.	Reg.
Livonia,	Mich.	12	13	11.5	1.4
Sterling Hts.,	"	7	6	6.4	1.4
Warren,	"	17	11	10.5	1.4
Jackson,	Miss.	23	23	12.1	1.7
Springfield,	Mo.	19	14	13.7	1.6
Lincoln,	Neb.	4	10	2.4	0.3
Albany,	N. Y.	4	3	3.5	0.4
Syracuse,	"	6	13	3.4	0.4
Yonkers,	"	11	7	5.8	0.9
Durham,	N. C.	8	11	7.6	1.2
Greensboro,	"	21	27	12.8	2.0
Raleigh,	"	15	17	10.8	1.6
Winston-Salem,	"	13	26	9.3	1.4
Dayton,	Ohio	28	23	14.7	1.6
Youngstown,	"	21	15	18.2	1.9
Allentown,	Pa.	9	11	8.8	0.9
Erie,	"	15	10	12.3	1.9
Providence,	R. I.	7	18	4.5	0.7
Knoxville,	Tenn.	23	31	12.4	1.6
Arlington,	Tex.	31	34	23.3	4.5
Beaumont,	"	19	23	16.1	2.1
Garland,	"	15	20	11.4	1.2
Lubbock,	"	21	31	12.5	1.5
Pasadena,	"	10	20	9.6	1.3
Waco,	"	15	18	14.5	1.5
Salt Lake City,	Utah	15	21	9.2	1.1
Alexandria,	Va.	5	1	4.8	0.7
Arlington,	"	14	9	9.0	1.1
Chesapeake,	"	19	20	16.7	1.9
Hampton,	"	11	4	8.8	1.1
Newport News,	"	20	3	13.9	1.8
Portsmouth,	"	6	5	5.5	0.9
Spokane,	Wash.	14	16	8.2	1.0
Tacoma,	"	26	14	16.6	1.9
Madison,	Wis.	10	16	5.9	0.9

Group VII—50,000-100,000 Population (144 Cities)

City		1988	1987	1988 Rates	
				Pop.	Reg.
All Cities		**947**	**903**	**9.5**	**1.2**
Tuscaloosa,	Ala.	6	12	8.7	1.1
Fort Smith,	Ark.	6	7	8.8	1.0
N. Little Rock,		5	5	8.0	1.1
Pine Bluff,		17	7	30.5	3.4
Burbank,	Cal.	4	4	4.8	0.6
Chula Vista,		4	5	4.9	0.5
Compton,		11	16	14.8	1.9
Daly City,		3	3	4.1	0.5
El Cajon,		5	6	7.2	0.9
Escondido,		18	9	30.4	4.5
La Mesa,		4	3	8.0	0.8
Modesto,		9	12	9.2	1.2
Oceanside,		9	22	13.1	1.4
Palo Alto,		2	5	3.7	0.4
Pico Rivera,		3	4	5.9	0.8
Redondo Beach,		4	5	6.7	0.9
Richmond,		3	9	4.0	0.6
Santa Clara,		6	5	7.1	0.8
Santa Monica,		18	10	20.4	2.6
South Gate,		3	6	5.0	0.7
Vallejo,*		8	6	11.2	1.2
Westminster,		13	9	18.5	2.3
Whittier,		7	8	10.1	1.1
Gainesville,	Fla.	12	11	16.8	1.8
Lakeland,	"	13	11	25.8	3.1
Miami Beach,	"	16	11	18.1	2.0
Pensacola,	"	9	10	13.5	1.5
Pompano Beach,	"	26	23	49.4	5.4
West Palm Beach,	"	15	10	25.4	2.7
Aurora,	Ill.	7	9	8.7	0.9
Champaign,	"	0	7	0.0	0.0
Decatur,	"	12	9	13.4	1.5
Elgin,	"	4	7	6.3	0.7
Evanston,	"	1	3	1.4	0.2
Joliet,	"	10	7	13.8	1.7
Skokie,	"	0	1	0.0	0.0
Springfield,	"	4	7	4.6	0.5
Waukegan,	"	1	7	1.6	0.2
Anderson,	Ind.	8	4	11.7	1.3
Muncie,	"	6	5	7.4	1.0
Dubuque,	Ia.	5	2	8.2	1.0
Sioux City,	"	10	8	11.8	1.6
Waterloo,	"	4	4	5.0	0.6
Overland Park,	Kans.	3	7	3.6	0.5
Owensboro,	Ky.	0	2	0.0	0.0
Lafayette,	La.	12	9	14.8	2.2
Lake Charles,	"	12	9	15.1	2.3
Portland,	Me.	3	4	4.9	0.6
Brookline,	Mass.	4	3	7.3	1.5
Chicopee,	"	6	1	10.9	1.4
Framingham,	"	0	7	0.0	0.0
Lawrence,	"	3	1	4.8	0.7
Malden,	"	0	1	0.0	0.0
Newton,	"	3	1	3.6	0.5
Pittsfield,	"	5	5	9.6	1.4
Somerville,	"	1	1	1.3	0.3
Waltham,	"	1	3	1.8	0.2
Dearborn Hts.,	Mich.	6	6	8.9	1.3
Dearborn,	"	10	12	11.0	1.5
East Lansing,	"	1	0	2.0	0.4
Kalamazoo,	"	10	6	12.8	1.6
Pontiac,	"	11	8	14.0	1.7
Roseville,	"	9	9	16.5	2.1
Royal Oak,	"	4	7	5.6	0.7
Saginaw,	"	5	2	6.5	0.8
Southfield,	"	9	7	11.9	2.1
St. Clair Shrs.,	"	1	6	1.3	0.2
Taylor,	"	9	6	11.6	1.8
Troy,	"	10	1	14.9	1.9
Wyoming,	"	4	3	6.7	1.1
Duluth,	Minn.	5	5	5.4	0.7
Rochester,	"	4	1	7.1	0.8
Columbia,	Mo.	4	6	6.1	0.7
Florissant,	"	0	0	0.0	0.0
St. Joseph,	"	6	3	7.7	1.1
Billings,	Mont.	4	2	5.8	0.7
Great Falls,	"	1	3	1.8	0.2
Reno,	Nev.	9	9	9.8	1.4
Manchester,	N. H.	14	9	15.4	1.8
Nashua,	"	2	6	2.9	0.3
Bayonne,	N. J.	2	6	3.1	0.6
Camden,	"	8	5	9.4	1.4
Clifton,	"	9	8	12.1	1.7

Motor-Vehicle Traffic Deaths, Cities, 1987-1988, Cont.

City		1988	1987	1988 Rates	
				Pop.	Reg.
Dover Twp.,	N. J.	15	12	23.5	3.2
Middletown Twp.,	"	4	8	6.8	1.3
Trenton,	"	6	6	6.3	0.7
Vineland,	"	17	18	32.3	4.6
Mt. Vernon,	N. Y.	2	2	2.7	0.5
New Rochelle,	"	2	1	2.8	0.4
Schenectady,	"	5	4	7.0	0.9
Utica,	"	5	4	6.4	1.1
Fayetteville,	N. C.	11	9	18.5	2.4
Fargo,	N. D.	0	1	0.0	0.0
Canton,	Ohio	8	7	8.3	1.1
Elyria,	"	4	6	7.0	0.9
Fairborn,	"	2	0	3.4	0.8
Hamilton,	"	4	6	5.9	0.7
Kettering,	"	1	5	1.6	0.3
Lakewood,	"	1	0	1.6	0.3
Lima,	"	8	8	15.8	2.1
Mansfield,	"	3	5	5.3	0.7
Parma,	"	5	6	5.4	0.7
Springfield,	"	7	4	9.5	1.1
Lawton,	Okla.	5	5	6.5	0.8
Norman,	"	6	6	10.0	1.2
Salem,	Ore.	15	18	16.7	2.3
Bethlehem,	Pa.	6	7	8.3	0.8
Harrisburg,	"	5	4	8.6	1.3
Lancaster,	"	7	3	12.3	1.4
Lwr. Merion Twp.,	"	7	3	11.6	1.8
Reading,	"	8	6	10.4	1.3
Wilkes-Barre,	"	4	2	7.4	1.0
Cranston,	R. I.	10	3	13.9	2.6
Warwick,	"	13	16	14.9	1.8
Charleston,	S. C.	7	15	11.8	1.7
Sioux Falls,	S. D.	8	4	9.9	1.1
Abilene,	Tex.	9	10	9.3	1.0
Brownsville,	"	11	11	15.4	1.9
Galveston,	"	14	16	23.6	3.7
Grand Prairie,	"	14	12	24.6	3.3
Mesquite,	"	7	10	11.1	2.2
Midland,	"	8	5	11.9	1.4
Odessa,	"	15	10	16.6	2.0
Port Arthur,	"	20	8	32.6	5.2
San Angelo,	"	8	7	11.7	1.5
Tyler,	"	18	9	26.9	3.5
Orem,	Utah	3	5	5.7	0.9
Provo,	"	0	6	0.0	0.0
Lynchburg,	Va.	4	5	6.2	0.6
Roanoke,	"	5	10	5.1	0.7
Bellevue,	Wash.	10	7	14.0	1.6
Everett,	"	5	12	9.5	1.1
Yakima,	"	5	4	9.3	1.1
Charleston,	W. Va.	9	4	13.5	2.0
Huntington,	"	4	7	5.9	0.8
Appleton,	Wis.	0	0	0.0	0.0
Green Bay,	"	7	3	7.7	1.1
Janesville,	"	5	1	9.9	1.1
Kenosha,	"	4	3	5.0	0.6
Racine,	"	1	2	1.1	0.1
Waukesha,	"	2	0	4.0	0.6
Wauwatosa,	"	0	0	0.0	0.0
West Allis,	"	3	3	4.7	0.8
Casper,	Wyo.	4	5	7.9	0.9
Group VIII—25,000-50,000 Population (178 Cities)					
All Cities		**674**	**649**	**10.6**	**1.4**
Anniston,	Ala.	6	3	19.2	2.3
Dothan,	"	14	11	29.9	3.9
Florence,	"	5	1	13.6	1.7
Gadsden,	"	7	5	14.4	1.6
Phenix City,	"	3	3	11.0	1.3
Yuma,	Ariz.	10	7	30.7	3.4
Carlsbad,	Cal.	13	5	43.3	5.6
Chino,	"	2	0	5.4	0.9
Covina,	"	2	1	5.7	0.6
La Habra,	"	4	2	9.1	1.0
Livermore,	"	2	3	4.0	0.5
National City,	"	1	8	2.1	0.4
Redding,	"	11	11	26.2	3.2
Santa Cruz,	"	3	5	7.7	0.9
Vacaville,	"	1	3	2.7	0.3
Longmont,	Colo.	0	2	0.0	0.0
Newark,	Del.	2	2	7.9	1.0
Daytona Beach,	Fla.	13	16	26.6	2.9
Fort Myers,	"	10	6	27.6	3.0
Fort Pierce,	"	8	10	24.6	2.7
Hallandale,	"	3	7	9.0	1.4
Lake Worth,	"	3	8	11.5	1.4
N. Miami Beach,	"	5	1	13.9	2.3
North Miami,	"	8	8	18.9	3.0
Ocala,	"	12	12	34.3	4.7
Pembroke Pines,	"	6	3	20.3	2.6
Pinellas Park,	"	4	8	13.5	1.3
Plantation,	"	12	12	28.5	3.1
Idaho Falls,	Ida.	6	1	15.3	1.8
Alton,	Ill.	4	5	11.8	1.5
Berwyn,	"	6	4	12.9	1.6
Calumet City,	"	2	2	5.1	0.7
DeKalb,	"	2	3	6.1	1.1
Elk Grove Vlge.,	"	3	0	11.6	1.6
Elmhurst,	"	2	5	4.5	0.5
Galesburg,	"	5	4	15.2	1.9
Glenview,	"	2	6	6.3	0.8
Granite City,	"	15	3	38.8	3.9
Moline,	"	8	3	18.5	2.1
North Chicago,	"	5	5	12.1	2.3
Quincy,	"	0	5	0.0	0.0
Wheaton,	"	2	3	4.9	0.7
Wilmette,	"	1	1	3.2	0.5
Highland,	Ind.	3	0	11.5	1.7
Marion,	"	7	1	17.6	2.0
Michigan City,	"	2	8	4.8	0.6
Mishawaka,	"	3	7	7.6	0.8
Ames,	Ia.	4	2	8.7	1.4
Bettendorf,	"	0	4	0.0	0.0
Burlington,	"	4	2	13.6	1.5
Mason City,	"	1	2	3.3	0.4
Hutchinson,	Kans.	4	4	9.6	1.0
Manhattan,	"	4	2	11.5	1.3
Prairie Vlge.,	"	0	1	0.0	0.0
Salina,	"	3	2	7.7	0.8
Shawnee,	"	2	2	7.8	0.8
Bangor,	Me.	3	1	9.5	1.1
Annapolis,	Md.	4	3	12.7	1.9
Hagerstown,	"	2	2	5.4	0.7
Arlington,	Mass.	0	1	0.0	0.0
Belmont,	"	1	2	3.8	0.6

Motor-Vehicle Traffic Deaths, Cities, 1987-1988, Cont.

City		1988	1987	1988 Rates	
				Pop.	Reg.
Holyoke,	Mass	11	3	24.6	4.0
W. Springfield,	"	4	3	14.8	1.8
Watertown,	"	1	1	2.9	0.4
Allen Park,	Mich	5	2	14.6	2.1
Battle Creek,	"	2	3	4.8	0.6
Bay City,	"	2	1	4.8	0.6
East Detroit,	"	3	4	7.8	1.1
Ferndale,	"	0	1	0.0	0.0
Garden City,	"	2	2	5.6	0.8
Highland Park,	"	4	5	13.8	1.7
Inkster,	"	4	4	11.4	2.1
Jackson,	"	2	3	4.6	0.5
Kentwood,	"	10	5	32.9	5.2
Lincoln Park,	"	4	0	8.9	1.4
Madison Hts.,	"	2	1	5.7	0.9
Midland,	"	4	4	10.7	1.4
Muskegon,	"	6	5	14.8	1.8
Oak Park,	"	1	0	3.2	0.4
Port Huron,	"	2	3	5.9	0.7
Portage,	"	3	2	8.1	1.4
Southgate,	"	1	3	3.1	0.5
Westland,	"	7	5	16.2	2.0
Wyandotte,	"	3	1	8.8	1.1
Ypsilanti,	"	2	2	7.2	0.9
Brooklyn Center,	Minn	0	1	0.0	0.0
Coon Rapids,	"	2	5	6.2	1.2
Moorhead,	"	1	0	3.5	0.5
St. Louis Park,	"	3	1	6.7	1.0
Winona,	"	1	1	4.0	0.5
Cape Girardeau,	Mo	2	2	6.0	0.7
Gladstone,	"	0	0	0.0	0.0
Jefferson City,	"	7	6	18.5	2.5
Kirkwood,	"	1	1	3.3	0.4
Raytown,	"	0	2	0.0	0.0
St. Charles,	"	2	7	4.8	0.8
University City,	"	4	3	9.0	1.3
Grand Island,	Neb	1	4	3.0	0.3
N. Las Vegas,	Nev	9	7	21.1	3.6
Concord,	N. H.	2	4	6.6	0.8
Kearny,	N. J.	6	2	16.8	2.9
Neptune,	"	3	1	10.8	1.3
Piscataway Twp.,	"	0	3	0.0	0.0
West Orange,	"	9	2	21.9	3.3
Elmira,	N. Y.	0	2	0.0	0.0
Jamestown,	"	1	2	2.8	0.4
Rome,	"	2	2	4.3	0.6
Watertown,	"	1	2	3.6	0.4
Burlington,	N. C.	7	3	19.0	2.4
Goldsboro,	"	2	2	6.3	0.9
Bismarck,	N. D.	1	6	2.3	0.4
Barberton,	Ohio	2	2	7.5	0.8
Bowling Green,	"	2	0	7.7	1.2
East Cleveland,	"	10	7	27.1	3.8
Garfield Hts.,	"	2	1	5.7	0.8
Kent,	"	4	0	15.2	2.1
Middletown,	"	5	5	10.4	1.1
North Olmsted,	"	1	0	2.7	0.4
Portsmouth,	"	5	0	19.2	2.3
Sandusky,	"	3	1	9.6	1.0
Shaker Heights,	"	0	0	0.0	0.0
South Euclid,	"	1	0	3.9	0.5
Steubenville,	"	1	3	3.7	0.4
Stow,	"	4	5	15.7	3.1
Zanesville,	Ohio	3	1	7.8	1.0
Bartlesville,	Okla	4	3	13.6	1.6
Enid,	"	4	10	8.3	1.0
Muskogee,	"	0	2	0.0	0.0
Stillwater,	"	3	1	8.8	4
Medford,	Ore	4	0	10.5	1.4
Cheltenham Twp.,	Pa	3	2	8.1	1.5
Mt. Lebanon,	"	1	1	2.6	0.5
Woonsocket,	R. I.	5	2	10.9	1.4
Anderson,	S. C.	0	6	0.0	0.0
Florence,	"	6	5	18.4	2.4
Greenwood,	"	2	2	7.8	1.1
Rock Hill,	"	1	2	2.8	0.4
Spartanburg,	"	8	3	17.3	2.4
Sumter,	"	2	1	8.0	1.0
Aberdeen,	S. D.	0	1	0.0	0.0
Rapid City,	"	8	8	17.3	1.8
Oak Ridge,	Tenn	4	4	13.8	1.7
Big Spring,	Tex	2	5	6.9	0.8
Bryan,	"	10	4	26.7	3.6
Denton,	"	12	5	27.5	4.1
Farmers Branch,	"	4	3	12.1	1.6
Haltom City,	"	1	3	3.7	0.5
Harlingen,	"	6	8	14.9	2.0
Hurst,	"	3	3	9.9	1.4
Killeen,	"	5	6	11.8	1.3
Kingsville,	"	4	3	13.9	2.1
Orange,	"	9	3	34.9	4.7
Sherman,	"	8	4	29.2	3.6
Temple,	"	11	4	27.7	2.8
Texarkana,	"	2	6	5.9	0.8
Victoria,	"	7	6	14.2	1.9
Bountiful,	Utah	1	3	3.0	0.4
Logan,	"	1	1	3.7	0.5
Burlington,	Vt	2	1	5.4	0.6
Charlottesville,	Va	2	7	5.1	0.7
Danville,	"	10	5	21.8	3.0
Petersburg,	"	9	2	22.0	2.3
Bremerton,	Wash	1	4	2.4	0.3
Edmonds,	"	0	1	0.0	0.0
Kennewick,	"	2	3	7.0	1.0
Longview,	"	2	2	6.7	0.8
Olympia,	"	5	0	18.7	2.1
Renton,	"	3	5	10.4	1.3
Richland,	"	1	2	3.0	0.3
Vancouver,	"	4	1	8.3	1.1
Wheeling,	W. Va	2	1	4.7	0.6
Eau Claire,	Wis	4	1	8.1	0.9
Fond du Lac,	"	0	0	0.0	0.0
La Crosse,	"	2	3	4.1	0.5
Manitowoc,	"	2	0	6.0	0.7
Oshkosh,	"	1	1	2.0	0.2
Sheboygan,	"	4	1	8.2	1.0
Wausau,	"	2	2	6.1	0.7

Canadian Cities (7 Cities)

City		1988	1987	Pop.	Reg.
All Cities		**239**	**240**	**8.9**	**2.1**
Calgary,	Alta	40	48	12.1	2.7
Edmonton,	"	46	38	12.2	2.9
Lethbridge,	"	7	4	19.1	4.1
Medicine Hat,	"	3	3	12.0	2.6
Vancouver,	B. C.	53	38	12.9	2.1
Hamilton,	Ont	29	36	9.7	1.7
Montreal,	Que	61	73	5.0	1.5

Source: City police departments, state traffic authorities. Only motor-vehicle deaths resulting from accidents occurring within the city are included.

Population death rates are deaths per 100,000 population. Registration death rates are deaths per 10,000 registered motor vehicles. Registration figures supplied by R. L. Polk & Co.

PUBLIC ACCIDENTS, 1988

Between 1912 and 1988, accidental public deaths per 100,000 population were reduced 77 per cent from 30 to 7. In 1912, an estimated 28,000 to 30,000 persons died in public nonmotor-vehicle accidents. In 1988, with a population more than doubled, and recreational activity greatly increased, only 18,000 persons died in public accidents and 2,300,000 suffered disabling injuries. Public excludes deaths involving motor-vehicles and persons at work or at home.

Deaths	**18,000**
Disabling injuries	**2,300,000**
Death rate per 100,000 population	**7.3**
Cost (see also pages 3 and 4)	**$10.9 billion**

The 1988 standardized death rate of 6.1 per 100,000 population, adjusted to the age distribution of the population in 1940, was 38 per cent below the rate for 1950, despite an increase in deaths for the same period of 20 per cent. In general, nontransport deaths increased while transport deaths decreased.

Year	Total Public	Transport[a]					Nontransport				
				Water							
		Total[b]	Air	Drowning[c]	Other	Rail[d]	Total[b]	Falls	Drowning[c]	Firearms	Fires, Burns
1950	15,000	3,950	1,050	1,000	100	1,450	11,050	2,750	3,750	1,150	500
1955	15,500	3,600	1,300	1,000	100	950	11,900	3,200	4,300	950	450
1960	17,000	3,150	1,150	1,000[e]	100	700	13,850	3,700	4,350	1,100	750
1965	19,500	3,200	1,200	1,000	100	700	16,300	5,300	4,400	900	800
1969	22,500	3,600	1,400	1,300	100	600	18,900	5,100	5,000	800	700
1970	23,500	3,300	1,200	1,200	100	600	20,200	5,000	5,200	900	700
1971	23,500	3,100	1,200	1,100	100	500	20,400	5,100	4,800	900	700
1972	23,500	3,200	1,200	1,200	100	500	20,300	5,100	4,900	900	700
1973	24,500	3,400	1,200	1,300	100	600	20,100	5,000	5,700	1,000	700
1974	23,000	3,200	1,200	1,200	100	500	19,800	5,000	5,100	900	600
1975	23,000	3,000	1,100	1,200	100	400	20,000	4,800	5,200	900	600
1976	21,500	2,800	1,100	1,000	100	400	18,700	4,800	4,400	800	600
1977	22,200	2,900	1,200	1,000	100	400	19,300	4,700	4,700	700	800
1978	22,000	3,200	1,400	1,100	100	400	18,800	4,600	4,600	700	600
1979	21,000	3,100	1,300	1,100	100	400	17,900	4,400	4,400	700	600
1980	21,300	2,900	1,100	1,100	100	400	18,400	4,500	4,700	700	600
1981	19,800	2,700	1,100	900	100	400	17,100	4,300	4,100	700	600
1982	19,500	2,900	1,200	1,000	100	400	16,[illegible]00	4,100	4,000	700	500
1983	19,400	2,700	1,000	1,000	100	400	16,700	4,100	4,000	700	500
1984	18,300	2,400	900	800	100	400	15,900	4,100	3,300	700	500
1985	18,800	2,500	1,000	800	100	400	16,300	4,100	3,300	600	500
1986	18,700	2,300	800	800	100	400	16,400	3,900	3,600	600	500
1987	17,500	2,200	800	700	100	400	15,300	3,600	3,300	500	500
1988	18,000	2,200	900	700	100	300	15,800	4,100	2,900	500	600

Source: National Safety Council estimates (1987 revised, 1988 preliminary) based on data from National Center for Health Statistics and state health departments. See page 31 for comparability.

[a] Transport is a primary classification but each class includes deaths from falls, drowning, burns, etc., occurring in connection with each type of transport.

[b] Includes some deaths not shown separately.

[c] Nontransport drownings are included in TOTAL drownings in table on pages 19, 20 and 21.

[d] Includes subways and elevateds.

[e] Data for this year and subsequent years not comparable with previous years due to classification changes.

Sports Injuries

The table below shows estimates of injuries, deaths and participants associated with various sports. Methods and coverage of reporting may vary among sources and can affect comparisons among sports. Because this list is not complete and the number of participants varies greatly, no inference should be made concerning the relative hazard of these sports or rank with respect to risk of injury.

Sport	Participants	Injuries	Fatalities
Archery	4,900,000	4,490	(a)
Baseball	15,200,000	327,620	0
Basketball	25,100,000	460,420	4
Bicycle riding	53,200,000	525,026	(a)
Boating	30,900,000	3,476[b]	946[b]
Bowling	40,100,000	17,382	(a)
Boxing	(a)	4,439	(a)
Fishing	45,800,000	66,605	(a)
Football	15,000,000	323,112	6[c]
Golf	20,300,000	19,836	(a)
Gymnastics	(a)	37,671	(a)
Handball	(a)	2,857	(a)
Hang gliding	7,000[d]	(a)	8[d]
Ice hockey	1,200,000	18,910	0
Ice skating	6,400,000	23,010	(a)
Parachuting	115,000[e]	(a)	28[e]
Racquetball	7,900,000	16,190	(a)
Roller skating	19,800,000	72,109	(a)
Scuba diving	2,600,000[f]	(a)	76[f]
Skateboarding	7,000,000	80,242	(a)
Snow skiing	15,300,000	(a)	1
Soccer	9,800,000	94,569	3
Softball	21,600,000	(a)	0
Swimming	66,100,000	99,161	1,900[g]
Tennis	16,900,000	21,201	0
Volleyball	23,600,000	88,617	(a)
Water skiing	10,800,000	21,828	25[b]
Wrestling	(a)	37,122	1

Source: Participants—National Sporting Goods Association (1987), except where noted; figures include those who participate more than one time per year except for bicycle riding and swimming which include only those who participate more than six times per year. Injuries—Consumer Product Safety Commission (1988), except where noted; figures include only hospital emergency room treated injuries. Fatalities—National Collegiate Athletic Association (NCAA) (1986-1987 school year), except where noted; figures include school or college sponsored sports. [b]U.S. Coast Guard (1988). [c]NCAA (1988). [d]U.S. Hang Gliding Association (1987). [e]U.S. Parachute Association (1987). [f]National Underwater Accident Data Center (1987). [g]National Safety Council (1988).
[a]Estimate not available.

Football fatalities. Six fatalities directly attributable to football injuries occurred in 1988, according to a report covering professional, college, high school, and sandlot activities. All the fatalities occurred in high school play, with four occurring during games and two in practice. Four of the fatalities resulted from injuries to the head, one from chest injuries, and one from neck injuries. Of the fatalities in 1988, two were injured while tackling, one while being tackled, one was being blocked, one was in a pile-up and the activity of one was unknown.

In addition, there were 11 indirect fatalities recorded in 1988 (those fatalities which are caused by systemic failure as a result of exertion while participating in football activities or by a complication). Ten of the indirect fatalities were associated with high school football and one was associated with organized sandlot football.

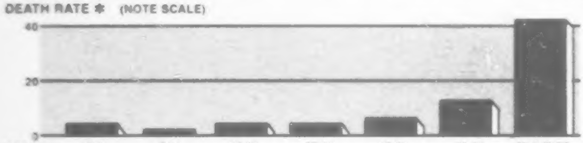
Source: Mueller, F.O., and Schindler, R.D. *Annual Survey of Football Injury Research, 1931-1988.* National Collegiate Athletic Association, 1989.

How people died in public accidents, 1988

(For accidental deaths in all places see pages 6 and 7.)

Type of accident and age of victim

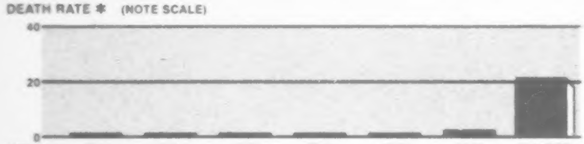
	Death Total	Change from 1987	Death Rate*
All public	18,000	+ 3%	7.3



AGE —	0-4	5-14	15-24	25-44	45-64	65-74	75 & OVER
DEATHS —	700	900	1,800	3,800	3,000	2,300	5,500

Includes deaths in public places or places used in a public way, not involving motor vehicles. Most sports and recreation deaths are included. Excludes deaths in the course of employment.

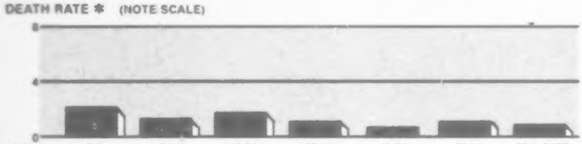
	Death Total	Change from 1987	Death Rate*
Falls	4,100	+14%	1.7



AGE —	0-4	5-14	15-24	25-44	45-64	65-74	75 & OVER
DEATHS —	30	70	150	350	400	400	2,700

Includes deaths from falls in public places. Excludes deaths in falls from moving vehicles.

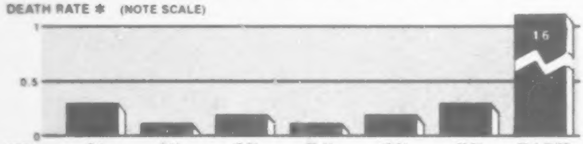
	Death Total	Change from 1987	Death Rate*
Drowning	2,900	-12%	1.2



AGE —	0-4	5-14	15-24	25-44	45-64	65-74	75 & OVER
DEATHS —	400	400	650	850	300	190	110

Includes drownings of persons swimming or playing in water, or falling into water, except on home premises or at work. Excludes drownings involving boats, which are in water transportation.

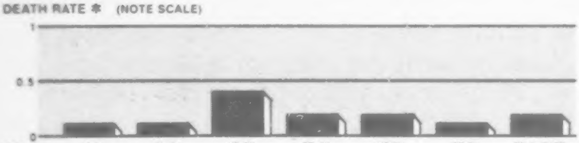
	Death Total	Change from 1987	Death Rate*
Fires, burns, and deaths associated with fires	600	+20%	0.2



AGE —	0-4	5-14	15-24	25-44	45-64	65-74	75 & OVER
DEATHS —	50	50	60	110	80	50	200

Includes deaths from fires, burns, and injuries in conflagrations in public places—such as asphyxiation, falls, and struck by falling objects. Excludes burns from hot objects or liquids.

	Death Total	Change from 1987	Death Rate*
Firearms	500	0%	0.2



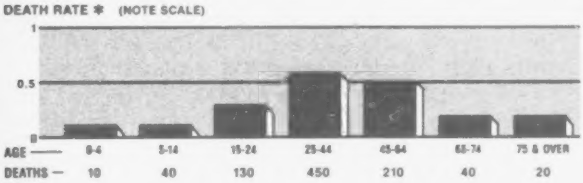
AGE —	0-4	5-14	15-24	25-44	45-64	65-74	75 & OVER
DEATHS —	10	50	160	180	70	10	20

Includes deaths from firearms accidents in public places, including hunting accidents. Excludes deaths from explosive materials.

Death Total | Change from 1987 | Death Rate[a]

Air transport

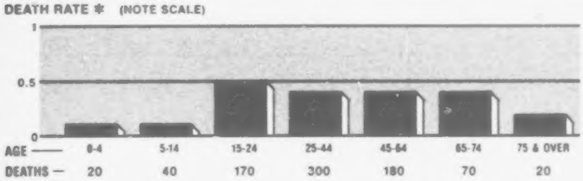
900[b] +13% 0.4



Includes deaths in private flying, passengers in commercial aviation, and deaths of military personnel in accidents in the U.S. Excludes crews and persons traveling in the course of employment.

Water transport

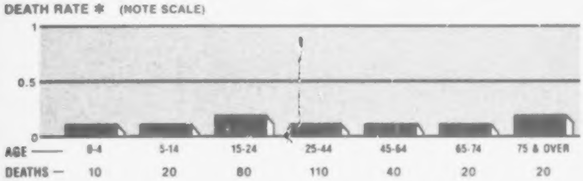
800[b] 0% 0.3



Includes deaths in water transport accidents—from falls, burns, etc., as well as drownings. More than nine out of ten of the drownings involved occupants of small boats.

Railroad

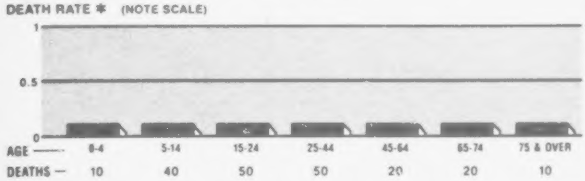
300[b] -25% 0.1



Includes deaths arising from railroad vehicles in motion (except those involving motor vehicles), subway and elevated trains, persons boarding or alighting from standing trains.

Other transport

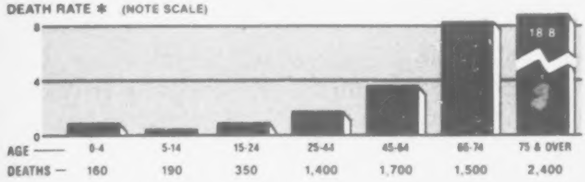
200[b] 0% 0.1



Includes deaths in accidents involving pedalcycles, animal-drawn vehicles, street cars, etc., except in collision with motor vehicles. Excludes trolley buses, subways, elevateds, scooters.

All other public

7,700 + 4% 3.1



Most important types included are: medical complications, excessive heat or cold, suffocation by ingestion, and poisoning by solid and liquid.

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*Deaths per 100,000 population in each age group.

[a] Deaths per 100,000 population.
[b] Excludes persons at work.

Storm data

Deaths from storms in the U.S. totaled 276 during the one year period from September 1987 through August 1988, according to the latest data available from the National Climatic Data Center. For specified types of storms, lightning was associated with the most deaths (72), followed by floods (35), tornadoes (33), thunderstorm winds (22), and high winds (17). Deaths varied greatly by month, with August having the greatest number.

Injuries from storms during the same one year period totaled 1,909. Tornadoes were associated with the greatest number of injuries (847), followed by lightning (343), and thunderstorm winds (328). Months with the greatest number of injuries were July (primarily lightning), and November (primarily tornadoes).

Deaths and Injuries from Storms, Sept. 1987-Aug. 1988

Month	Total	Tornadoes	Hail	Thunderstorm Winds	High Winds	Lightning	Floods[a]	Heavy Snowstorms[a]	Hurricane[a]	Others
					DEATHS					
Total	**276**	**33**	**0**	**22**	**17**	**72**	**35**	**15**	**6**	**76**
September	26	0	0	3	0	7	7	0	0	9
October	5	0	0	0	0	2	0	3	0	0
November	24	11	0	3	2	0	3	0	5	0
December	29	6	0	0	8	0	2	5	0	8
January	19	5	0	0	0	0	1	5	1	7
February	5	0	0	0	1	0	3	0	0	1[b]
March	8	1	0	2	2	0	0	2	0	1
April	16	4	0	2	0	3	4	0	0	3
May	20	3	0	1	1	9	3	0	0	3
June	26	0	0	3	0	17	0	0	0	6[b]
July	40	0	0	2	0	20	7	0	0	11[b]
August	58	3	0	6	3	14	5	0	0	27[b]
					INJURIES					
Total	**1,909**	**847**	**20**	**328**	**61**	**343**	**19**	**7**	**6**	**278**
September	260	3	0	42	0	43	10	0	0	162
October	13	0	0	4	2	3	0	2[b]	2	0
November	329	305	0	20	1	1	2	0	0[b]	0
December	276	226	0	8	28	1	2	0[b]	0	11
January	117	93	0	5	4[b]	0	0	2	4	9[b]
February	3	0	0	0	3	0	0	0	0	0[b]
March	30	10	0	9	6[b]	1	2	2	0	0
April	78	37[b]	0[b]	18	8[b]	14	0	1	0	0[b]
May	84	31	1	22[b]	8	22	0[b]	0	0	0[b]
June	193	42	1	89	0	53	0	0	0	8[b]
July	361	95	0	59	0	141	3[b]	0	0	63[b]
August	165	5	18	52	1	64	0	0	0	25[b]

Scurce: National Oceanic and Atmospheric Administration National Climatic Data Center.

[a] Floods include flash floods. Heavy snowstorms include blizzards. Hurricanes include tropical storms.

[b] Includes storms with unknown or questionable number of deaths or injuries.

Snow skiing. Excess speed and loss of control are the primary factors associated with snow skiing fatalities according to a study recently reported in *The Physician and Sportsmedicine*. The study included 22 accidental skiing fatalities in Vermont over a nine year period, of which 20 were associated with high speed and loss of control as determined by witnesses or investigators.

More than three fourths of the deaths occurred after collisions with a stationary object, most often trees. Other objects named included rocks, lift towers, or drainage ditches. Most deaths resulted from head trauma alone or in combination with other injuries. One case was related to alcohol use.

Based on available exposure data, researchers determined a fatality rate of one death per 1.6 million skier-days for ski areas involved in the study.

Source: Duda, M. Study links deaths to speed in Alpine skiing. *The Physician and Sportsmedicine*. February 1989. *17* (2), 47.

Transportation Accident Statistics

Passenger transportation accidents account for about one fourth of all accidental deaths. But the risk to the passenger, expressed on a per mile basis, varies greatly by transportation mode. Automobile travel presents the greatest risk; air, rail and bus travel have much lower death rates. The tables below show the latest information on passenger transportation deaths and death rates.

Transportation Accident Death Rates, 1985-1987

Kind of Transportation	1987 Passenger Deaths	1987 Passenger Miles (billions)	1987 Deaths per 100,000,000 Passenger Miles	1985-1987 Average Death Rate
Passenger automobiles[a]	24,909	2,578.7	0.97	0.97
Buses	34[b]	116.5	0.03	0.03
School buses	*11*	*72.9*	*0.02*	*0.01*
Transit buses	*2*	*20.8*	*0.01*	*0.01*
Intercity buses	*10*	*22.8*	*0.04*	*0.04*
Railroad passenger trains[c]	16	12.1	0.13	0.07
Scheduled airlines[d]	253	329.1	0.07	0.05

Source: Automobile and bus passenger deaths—Fatal Accident Reporting System data. Railroad passenger deaths—Federal Railroad Administration. Airplane passenger deaths—National Transportation Safety Board. Passenger miles for intercity buses, railroad, and airlines—Transportation Policy Associates, *Transportation in America*, Washington, DC, March, 1988. All other figures—National Safety Council estimates.

[a] Includes taxi passengers. Drivers of passenger automobiles are considered passengers.

[b] Deaths include other and unknown bus types.

[c] Includes commutation.

[d] Includes large airlines and scheduled commuter airlines. Rates exclude suicide/sabotage deaths.

Passenger Deaths and Death Rates, 1978-1987

Year	Passenger Cars & Taxis		Buses		Railroad Passenger Trains		Scheduled Airlines	
	Deaths	Rate[a]	Deaths	Rate[a]	Deaths	Rate[a]	Deaths	Rate[a]
1978	28,035	1.26	28	0.03	13	0.12	175	0.09
1979	27,713	1.28	28	0.03	6	0.05	371	0.17
1980	27,339	1.29	42	0.05	4	0.04	28	0.01
1981	26,410	1.25	41	0.05	4	0.04	22	0.01
1982	22,859	1.02	32	0.04	9	0.09	218	0.10
1983	22,739	0.98	49	0.05[b]	4	0.04	17	0.01
1984	23,373	0.98	37	0.03	12	0.11	39	0.02
1985	22,983	0.96	47	0.04	3	0.03	202	0.07
1986	24,704	1.00	36	0.03	4	0.03	7	0.002
1987	24,909	0.97	34	0.03	16	0.13	253	0.07

Source: See table above.

[a] Deaths per 100,000,000 passenger miles.

[b] Rate not comparable to prior years due to change in school bus passenger mileage estimating procedure.

Passenger automobiles and taxis. Automobile occupants account for about two thirds of all vehicle occupant deaths, and automobiles represent about 70 per cent of the total vehicle miles of travel. The automobile statistics shown in the tables above represent all passenger car usage, both intercity and local. About three fifths of the total auto passenger miles is intercity travel.

Buses. School buses transport approximately 22.0 million students each school day, or about 4.0 billion each year. Intercity buses carried 324 million passengers in 1987. A current estimate of the number of transit passengers is not available.

Railroad passenger trains. In 1987, Amtrak accounted for about 43 per cent of the railroad passenger miles and all of the 16 railroad passenger fatalities. In 1988, none of the 2 passenger fatalities were on Amtrak. Railroads carried about 310 million passengers in 1987.

Scheduled airlines. Of the 253 passenger deaths in 1987 in scheduled service, 211 were on large airlines and 42 were on commuter airlines. Of the scheduled large airline passenger deaths in 1987, 38 were suspected sabotage and not included in death rate calculations. In 1988, 256 of the 273 scheduled airline passenger deaths were on large airlines. Of these, 244 were suspected sabotage and occurred on foreign soil involving a U.S. carrier.

U. S. Civil Aviation Accidents, Deaths, and Death Rates, 1983-1988

Year	Accidents		Deaths[a]	Accident Rates			
				Per 100,000 Aircraft-Hours		Per Million Aircraft-Miles	
	Total	Fatal		Total	Fatal	Total	Fatal
			Large Airlines[b]				
1984	13	1	4	0.168	0.013	0.004	0.0003
1985	17	4	197	0.206	0.048	0.005	0.001
1986	21	2	5	0.212	0.011	0.005	0.0005
1987	33	4	231	0.320	0.030	0.008	0.001
1988	29	3	285	0.275	0.020	0.007	0.0007
			Commuter Airlines[b]				
1984	22	7	48	1.26	0.40	0.08	0.02
1985	21	7	37	1.21	0.40	0.07	0.02
1986	15	2	4	0.86	0.12	0.05	0.01
1987	34	12	61	1.74	0.61	0.10	0.03
1988	20	2	21	0.99	0.10	0.06	0.01
			On-Demand Air Taxis[b]				
1984	146	23	52	4.74	0.75	...	...
1985	152	35	76	5.46	1.26	...	...
1986	116	31	65	3.98	1.06	...	...
1987	99	29	64	3.44	1.01	...	...
1988	97	28	57	3.36	0.97	...	...
			General Aviation[b]				
1984	3,010	543	1,039	9.54	1.72	...	...
1985	2,741	498	950	8.95	1.62	...	...
1986	2,581	471	961	8.80	1.61	...	...
1987	2,471	435	830	8.46	1.49	...	...
1988	2,332	438	782	7.95	1.49	...	...

Source: National Transportation Safety Board. 1988 preliminary, 1984-1987 revised; exposure data for rates from Federal Aviation Administration and Civil Aeronautics Board.

[a] Includes passengers, crew members, and others.

[b] Civil aviation accident statistics collected by the National Transportation Safety Board are classified according to the Federal air regulations under which the flights were made. The classifications are (1) large airlines operating scheduled service under Title 14, Code of Federal Regulations, part 121 (14 CFR 121), (2) commuter carriers operating scheduled service under 14 CFR 135, (3) unscheduled "on-demand" air taxis under 14 CFR 135, and (4) "general aviation", which includes accidents involving aircraft flown under rules other than 14 CFR 121 and 14 CFR 135. Suicide/sabotage is included in accident and fatality totals but excluded from rates. Not shown in the table is nonscheduled air carrier operations under 14 CFR 121 which experienced 1 accident and no fatalities in 534,800 aircraft-hours flown during 1988.

Worldwide Airline Fatalities

Worldwide passenger deaths in scheduled air services totaled 709 in 1988, according to the International Civil Aviation Organization, a special agency of the United Nations with 160 member States. The death rate per 100 million passenger miles in 1988 was 0.08. Aircraft accidents involving a passenger fatality totaled 25.

Deaths and death rates recorded decreases in 1988 from 1987. Passenger deaths per year averaged 685 for the last 10 years.

Year	Aircraft Accidents[a]	Passenger Deaths	Death Rate[b]	Year	Aircraft Accidents[a]	Passenger Deaths	Death Rate[b]
1969	33	965	0.44	1979	31	877	0.16
1970	29	700	0.29	1980	22	814	0.14
1971	32	884	0.35	1981	21	362	0.06
1972	41	1,209	0.42	1982	26	764	0.13
1973	36	862	0.27	1983	20	809	0.13
1974	29	1,299	0.38	1984	16	223	0.03
1975	21	467	0.13	1985	22	1,066	0.15
1976	20	734	0.19	1986	17	331	0.04
1977	24	516	0.12	1987	24	890	0.10
1978	25	754	0.15	1988[c]	25	709	0.08

Source: International Civil Aviation Organization. Figures exclude USSR.

[a] Involving a passenger fatality. [b] Passenger deaths per 100 million passenger miles. [c] Preliminary.

Deaths and Injuries in Railroad Accidents, 1933-1988

Year	Casualties Not at Public Grade-Crossings	All Casualties					
		TOTAL	Passengers on Trains[a]	Employees on Duty		Other Nontrespassers[a]	Trespassers
				Number	Rate[b]		
			DEATHS[c]				
1933	3,796	5,434	47	571	0.25	1,791	3,025
1943[d]	3,426	5,302	271	1,089	0.29	2,154	1,788
1953[d]	1,518	3,110	50	339	0.12	1,712	1,009
1963	896	2,268	13	195	0.13	1,466	594
1973	721	1,989	6	166	0.15	1,225	592
1979	595	1,429	6	101	0.09	806	516
1980	629	1,417	4	97	0.10	750	566
1981	587	1,284	4	65	0.07	633	582
1982	539	1,119	9	78	0.10	531	501
1983	531	1,073	4	61	0.08	536	472
1984	637	1,247	12	59	0.08	588	588
1985	499	1,036	3	46	0.07	513	474
1986	513	1,091	4	57	0.09	511	519
1987	567	1,165	16	55	0.09	510	584
1988	547	1,199	2	43	0.07	556	598
			INJURIES[c]				
1933	23,509	27,079	1,963	15,512	6.71	5,806	3,798
1943[d]	55,884	59,957	5,013	45,685	11.79	7,989	1,270
1953[d]	25,302	29,019	2,460	19,352	6.93	6,288	919
1963	23,839	27,329	2,135	19,397	12.56	5,162	635
1973	14,948	18,148	503	13,066	11.99	3,979	600
1979	69,954	74,126	1,001	66,924	62.12	5,396	805
1980	58,584	62,246	593	56,331	55.73	4,594	728
1981	49,882	53,003	409	47,838	50.45	3,995	761
1982	37,767	40,275	387	36,032	44.96	3,185	671
1983	32,352	34,819	502	30,416	41.36	3,218	683
1984	35,847	38,570	1,000	33,364	44.93	3,433	773
1985	31,796	34,304	657	29,822	42.79	3,091	734
1986	24,595	26,923	686	22,387	34.74	3,144	706
1987	23,720	26,033	475	21,982	35.51	2,903	673
1988	24,637	27,054	337	22,573	37.12	3,224	920

Source: Federal Railroad Administration. See lower table for footnotes. (1988 preliminary.)

Rail-Highway Public Grade-Crossing Accidents, 1943-1988

Year	Deaths[c]				Nonfatal Injuries[c]			
	TOTAL	Motor-Vehicle	Pedestrian	Other	TOTAL	Motor-Vehicle	Pedestrian	Other
1943[d]	1,876	1,525	325	26	4,073	3,831	147	95
1953[d]	1,592	1,419	152	21	3,717	3,632	57	28
1963	1,372	1,286	71	15	3,454	3,366	33	55
1973	1,233	1,078	78	77	3,259	3,115	37	107
1979	834	727	71	36	4,172	4,019	37	116
1980	788	708	54	26	3,662	3,534	31	97
1981	697	623	47	27	3,121	3,020	30	71
1982	580	526	36	18	2,508	2,417	22	69
1983	542	483	37	22	2,467	2,372	29	66
1984	610	543	40	27	2,723	2,597	25	101
1985	537	480	31	26	2,508	2,395	21	92
1986	578	507	44	27	2,328	2,227	36	65
1987	598	533	44	21	2,313	2,239	27	47
1988	652	594	41	17	2,417	2,344	34	39

Source: Federal Railroad Administration data for public grade-crossing accidents only. (1988 preliminary.)

[a] Federal Railroad Administration definitions are "Persons on or getting on or off passenger-carrying trains under conditions not constituting trespass are designated as 'passengers on trains.' Other persons lawfully on railroad premises in connection with their journeys by railroads are designated as 'traveler not on trains'"; in 1957 and later years these were included with "other nontrespassers."

[b] Prior to 1975 rates are for Class I railroads only, which account for more than nine tenths of railroad exposure. Employee work hours for other railroads were not available. The rates are the number of deaths or injuries per million hours worked. Because of differences in definitions the injury rates are not comparable with those for other industries shown elsewhere in *Accident Facts*.

[c] From 1961 through 1974 the F. R. A. classified those cases where death occurred more than 24 hours after the injury as nonfatal injuries. In the tables above these cases are included as deaths. Effective with 1975, subsequent deaths are classified as deaths; injuries that disable a person for less than three days are now counted.

[d] Changes in F. R. A. reporting rules make comparisons invalid for 1933-1953 with subsequent years.

HOME ACCIDENTS, 1988

Between 1912 and 1988, accidental home deaths per 100,000 population were reduced 69 per cent from 28 to 9. In 1912, when there were 21 million homes, an estimated 26,000 to 28,000 persons were killed in home accidents. In 1988, with 91 million homes and the population more than doubled, accidental home deaths numbered only 22,500.

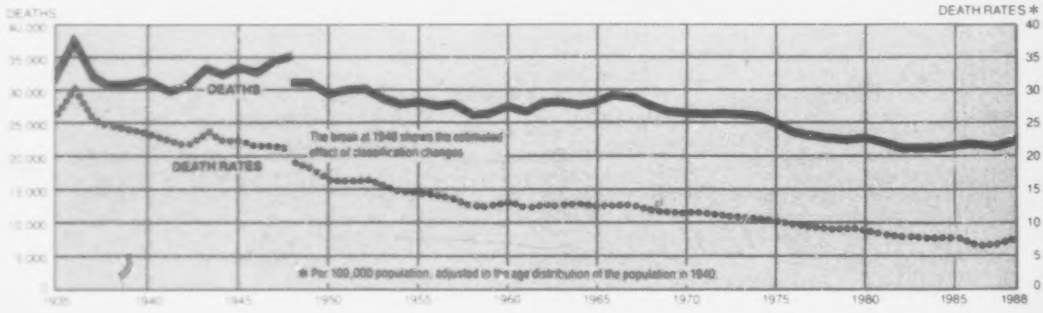
Deaths	**22,500**
Disabling injuries	**3,400,000**
Death rate per 100,000 population	**9.2**
Cost (see also pages 3 and 4)	**$17.4 billion**

The injury total of 3,400,000 means that one person in 72 in the U.S. was disabled one or more days by injuries received in home accidents in 1988. About 90,000 of these injuries resulted in some permanent impairment. Disabling injuries are more numerous for home accidents than for any other class of accident.

The National Health Interview Survey indicates that about 20,968,000 home injuries occurred in 1987 (the latest year available). This means that about one person in 12 incurred a home injury requiring medical attention or resulting in one half day or more of restricted activity. Approximately 150,032,000 days of restricted activity and 46,823,000 days of bed disability resulted from injuries in and around the home. See page 5 for definitions and numerical differences between National Health Interview Survey and National Safety Council figures.

Trends in home accidental deaths and standardized rates

The 1988 standardized death rate of 7.4 per 100,000 population, adjusted to the age distribution of the population in 1940, was 72 per cent below the rate for 1935. Deaths from home accidents in 1988 numbered about 21 per cent below 1935, after adjusting for the 1948 change in classification. Decreases of about 60 per cent occurred in the 0 to 4 and 5 to 14 year age groups. Deaths of those 25 to 64 years old, however, increased by 3 per cent from 1935. The age distribution of the population has also changed since 1935, especially for the group 65 and over, who now comprise about 12 per cent of the population compared to 6 per cent in 1935. The death rate per 100,000 population for this age group has decreased by four fifths.



Home Accident Deaths by Type of Accident, 1950-1988

(See also pages 14 and 15 for Total deaths and rates for earlier years)

Year	Total Home	Falls	Fires, Burns[a]	Suffo.-Ing. Obj.	Suffo.-Mech.	Poison (solid, liquid)	Poison by Gas	Fire-arms	Other
1950	29,000	14,800	5,000	([b])	1,600	1,300	1,250	950	4,100
1955	28,500	14,100	5,400	([b])	1,250	1,150	900	1,100	4,600
1960	28,000	12,300	6,350	1,850	1,500	1,350	900	1,200	2,550
1965	28,500	11,700	6,100	1,300[c]	1,200	1,700	1,100	1,300	4,100[c]
1968	28,000	10,800	6,100	2,000[c]	1,200[c]	2,100	1,100	1,300[c]	3,400[c]
1969	27,500	10,300	6,000	2,400	1,100	2,400	1,100	1,300	2,900
1970	27,000	9,700	5,600	1,800	1,100	3,000	1,100	1,400	3,300
1971	26,500	9,300	5,600	1,900	1,000	3,000	1,000	1,300	3,400
1972	26,500	9,300	5,500	1,800	900	3,000	1,000	1,400	3,600
1973	26,500	9,200	5,300	1,900	1,100	3,000	1,000	1,500	3,500
1974	26,000	9,000	5,100	1,800	900	3,200	900	1,400	3,700
1975	25,000	8,000	5,000	1,800	800	3,700	1,000	1,300	3,400
1976	24,000	7,700	5,200	1,800	700	3,300	1,000	1,200	3,100
1977	23,200	7,400	5,000	1,800	800	2,700	1,000	1,100	3,400
1978	22,800	7,400	5,100	1,800	800	2,400	1,100	1,000	3,200
1979	22,500	7,100	4,900	2,000	500	2,500	900	1,100	3,500
1980	22,800	7,100	4,800	2,000	500	2,500	700	1,100	4,100[d]
1981	21,700	6,800	4,700	2,000	500	2,600	800	1,000	3,300
1982	21,200	6,500	4,300	2,100	600	2,700	800	1,000	3,200
1983	21,200	6,500	4,100	2,200	600	2,700	800	900	3,400
1984	21,200	6,400	4,100	2,300	600	3,000	700	900	3,200
1985	21,600	6,500	4,000	2,400	600	3,200	700	900	3,300
1986	21,700	6,100	4,000	2,500	600	3,700	600	800	3,400
1987	21,500	6,400	4,200	2,200	600	3,600	600	700	3,200
1988	22,500	6,500	4,100	2,400	500	4,300	600	800	3,300

Source: National Safety Council estimates (1987 revised, 1988 preliminary) based on data from National Center for Health Statistics and state health departments. See page 31 for comparability.

[a] Includes deaths resulting from conflagration, regardless of nature of injury. [b] Included in Other.

[c] Data for this year and subsequent years not comparable with previous years due to classification changes.

[d] Includes about 1,000 excessive heat deaths due to summer heat wave.

Pool drownings

Residential pool drowning deaths for those under 5 years of age increased from 260 in 1984 to 330 in 1986, according to data from the U.S. Consumer Product Safety Commission. Those under age 5 represented over half of all residential pool drowning deaths, and those under age 3 represented over one third. In addition, an estimated 25 children under age 5 drowned in nonresidential swimming pools, and at least 6 were reported to have drowned in wading pools during 1986.

Nonfatal submersion injuries to children under 5 treated in hospital emergency rooms during 1987 were estimated at 4,176.

The table below shows the number of drownings in residential pools and the per cent distribution by age of victim.

Residential Pool Drowning Deaths, 1984-1986

Age	1986		1985[a]		1984[a]	
	No.	%	No.	%	No.	%
Total Accidents	**630**	**100.0%**	**510**	**100.0%**	**540**	**100.0%**
Under 5 years	330	52.4	280	54.9	260	48.2
0 to 2 years	*230*	*36.5*	*190*	*37.3*	*170*	*31.5*
3 and 4 years	*100*	*15.9*	*90*	*17.6*	*90*	*16.7*
5 to 14 years	70	11.1	40	7.8	60	11.1
15 to 24 years	50	7.9	50	9.8	40	7.4
25 to 64 years	110	17.5	80	15.7	130	24.1
65 years and over	70	11.1	60	11.8	50	9.2

Source: Consumer Product Safety Commission Death Certificate File, Directorate for Epidemiology, National Center for Health Statistics Death Certificates.

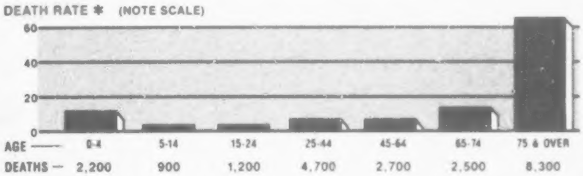
[a] Revised.

How people died in home accidents, 1988

(For accidental deaths in all places see pages 6 and 7.)

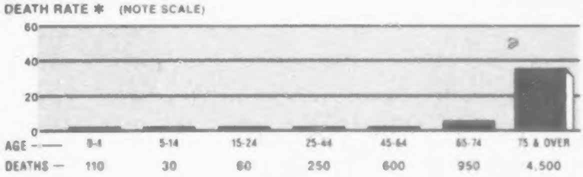
Type of accident and age of victim	Death Total	Change from 1987	Death Rate²
All home	22,500	+ 5%	9.2
Falls	6,500	+ 2%	2.6
Poisoning by solids and liquids	4,300	+19%	1.7
Poisoning by gases and vapors	600	0%	0.2
Fires, burns, and deaths associated with fires	4,100	- 2%	1.7

All home



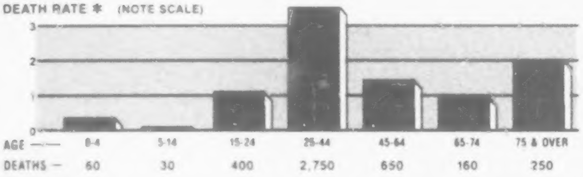
Includes deaths in the home and on home premises to occupants, guests, and trespassers. Also includes domestic servants but excludes other persons working on home premises.

Falls



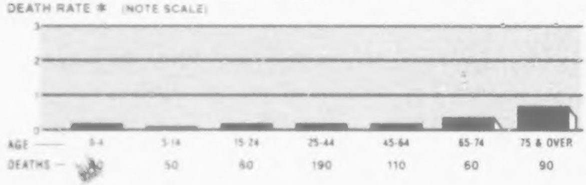
Includes deaths from falls from one level to another (stairs, ladder, roof, etc.); and on the same level (floor, ground, sidewalk, etc.).

Poisoning by solids and liquids



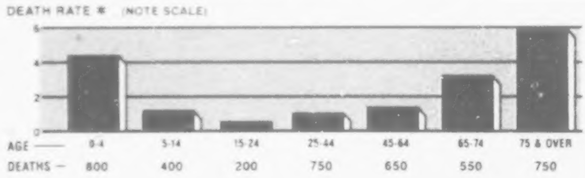
Includes deaths from drugs, medicines, mushrooms and shellfish, as well as commonly recognized poisons. Excludes poisonings from spoiled foods, salmonella, etc.—which are classified as disease deaths.

Poisoning by gases and vapors



Principally carbon monoxide due to incomplete combustion, involving cooking stoves, heating equipment and standing motor vehicles. Gas poisonings in conflagrations are classified as fire deaths.

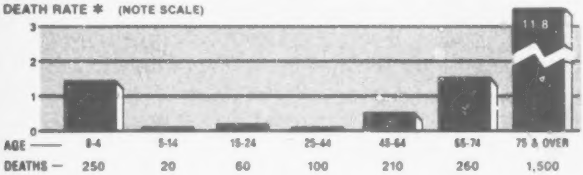
Fires, burns, and deaths associated with fires



Includes deaths from fires, burns, and from injuries in conflagrations in the home—such as asphyxiation, falls, and struck by falling objects. Excludes burns from hot objects or liquids.

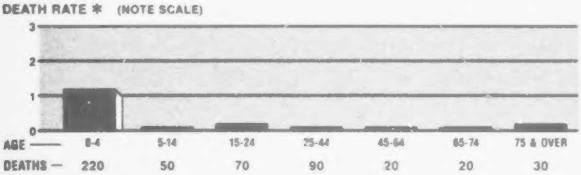
	Death Total	Change from 1987	Death Rate[2]
Suffocation-ingested object	2,400	+ 9%	1.0
Suffocation-mechanical	500	-17%	0.2
Drowning	800	0%	0.3
Firearms	800	+14%	0.3
All other home	2,500	+ 4%	1.0

Suffocation-ingested object



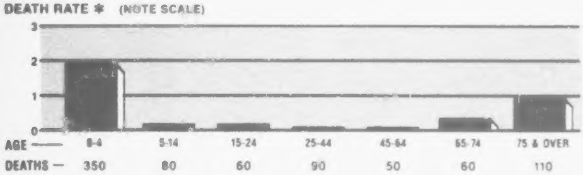
Includes deaths from accidental ingestion or inhalation of objects or food resulting in the obstruction of respiratory passages.

Suffocation-mechanical



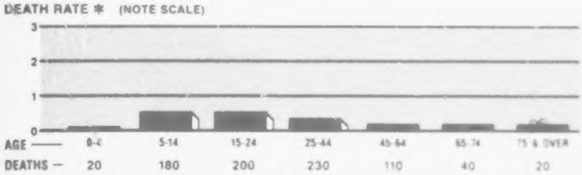
Includes deaths from smothering by bed clothes, thin plastic materials, etc., suffocation by cave-ins or confinement in closed spaces, and mechanical strangulation.

Drowning



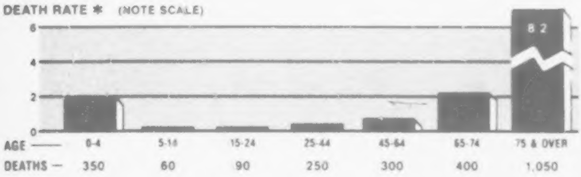
Includes drownings of persons in or on home premises. Most occur in swimming pools and bathtubs. Excludes drownings in floods and other cataclysms.

Firearms



Includes firearms accidents in or on home premises. Many occur while cleaning or playing with guns. Excludes deaths from explosive materials.

All other home



Most important types included are: electric current, explosive materials, and hot substance, corrosive liquid, and steam.

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*Deaths per 100,000 population in each age group.

[2] Deaths per 100,000 population.

Accidental fatal and nonfatal poisonings

Accidental deaths from solid and liquid poisoning increased by almost 16 per cent from 4,091 in 1985 to 4,731 in 1986, the latest year for which detailed tabulations are available. Deaths attributed to local anesthetics, including cocaine, accounted for the largest portion of this increase, rising from 390 fatalities in 1985 to 624 fatalities in 1986, a 60 per cent increase.

Over the last 30 years, the number and circumstances of accidental death from solid and liquid poisoning have changed greatly. Since 1956, the death rate per 100,000 population has more than doubled from 0.9 to 2.0 in 1986. The 25 to 44 year age group had the greatest increase in death rates, from 0.8 in 1956 to 3.8 in 1986. The death rate for the 0 to 4 year age group has fallen dramatically, from 2.1 in 1956 to 0.3 in 1986.

Due to classification changes, death figures by type of poisoning are only comparable since 1979. The number of deaths from drugs, medicaments and biologicals has increased steadily since 1979, while the number of deaths from other solid and liquid poisons, including household chemicals, has decreased slightly.

Total human poisoning exposures, both fatal and nonfatal, were projected at more than 2 million in 1987, according to the American Association of Poison Control Centers.

Poisoning by Type and Age, Accidental Deaths, 1986

Deaths by Type of Poisoning	All Ages	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65 Years and Over
Total Poisoning by Solids and Liquids	**4,731**	**59**	**26**	**473**	**2,885**	**716**	**572**
Rate (deaths per 100,000 population)	2.0	0.3	0.1	1.2	3.8	1.6	2.0
Male	*3,341*	*37*	*21*	*341*	*2,248*	*437*	*257*
Female	*1,390*	*22*	*5*	*132*	*637*	*279*	*315*
Drugs, medicaments, biologicals	**4,187**	**42**	**12**	**425**	**2,668**	**530**	**510**
Male	*2,906*	*23*	*7*	*301*	*2,067*	*294*	*214*
Female	*1,281*	*19*	*5*	*124*	*601*	*236*	*296*
Analgesics, antipyretics, antirheumatics	1,279	6	2	120	955	137	59
Opiates, related narcotics	*930*	*2*	*1*	*85*	*751*	*80*	*11*
Salicylates (incl. aspirin)	*74*	*2*	*1*	*1*	*22*	*16*	*32*
Other, unspecified analgesics, antipyretics, antirheumatics	*275*	*2*	*0*	*34*	*182*	*41*	*16*
Barbiturates	49	0	1	4	28	12	4
Other sedatives, hypnotics	30	2	1	4	13	9	1
Tranquilizers	92	5	0	6	49	21	11
Other psychotropic agents	205	4	2	22	111	56	10
Other drugs acting on central and autonomic nervous system (incl. local anesthetics)	685	3	2	107	525	33	15
Antibiotics	63	1	1	2	4	25	30
Anti-infectives	6	1	0	1	1	1	2
Other drugs	1,778	20	3	159	982	236	378
Cardiovascular drugs	*263*	*4*	*1*	*3*	*11*	*28*	*216*
Gastrointestinal drugs	*8*	*1*	*0*	*0*	*1*	*2*	*4*
Other, unspecified drugs	*1,507*	*15*	*2*	*156*	*970*	*206*	*158*
Other solids and liquids	**544**	**17**	**14**	**48**	**217**	**186**	**62**
Male	*435*	*14*	*14*	*40*	*181*	*143*	*43*
Female	*109*	*3*	*0*	*8*	*36*	*43*	*19*
Alcohol	352	1	3	15	146	148	39
Cleansing, polishing agents, disinfectants, paints, varnishes	6	3	1	1	0	1	0
Petroleum products, other solvents and their vapors	84	5	9	20	35	8	7
Agricultural, horticultural chemical pharmaceutical preparations	20	3	0	3	9	3	2
Corrosives, caustics	17	0	0	0	6	5	6
Foodstuffs, poisonous plants	6	1	1	1	2	1	0
Other, unspecified solids and liquids	59	4	0	8	19	20	8
Total Poisoning by Gases and Vapors	**1,009**	**34**	**28**	**200**	**343**	**207**	**197**
Rate (deaths per 100,000 population)	0.4	0.2	0.1	0.5	0.5	0.5	0.7
Male	*764*	*14*	*14*	*147*	*289*	*166*	*134*
Female	*245*	*20*	*14*	*53*	*54*	*41*	*63*
Gas distributed by pipeline	29	0	2	6	8	6	7
Other utility gas, other carbon monoxide	816	21	19	160	286	172	158
Other gases and vapors	164	13	7	34	49	29	32

Source: National Center for Health Statistics. See pages 19, 20 and 21 for earlier year totals; see page 31 for comparability.

Injuries associated with consumer products

The following list of items found in and around the home was selected from the U.S. Consumer Product Safety Commission's National Electronic Injury Surveillance System (NEISS) for 1987. The NEISS estimates are calculated from a sample of hospitals which are statistically representative of institutions with emergency treatment departments in the U.S. and its territories. Injury totals represent estimates of the number of hospital emergency room-treated cases nationwide associated with the various products. However, product involvement may or may not be the cause of the accident.

Estimated Injuries Related to Selected Consumer Products, 1987

Product	Injuries[a]
Home Maintenance:	
Noncaustic cleaning equip., detergents	19,467
Cleaning agents (except soaps)	36,357
Drain, oven cleaners, caustics	10,140
Miscellaneous household chemicals	16,082
Paints, solvents, lubricants	17,826
Home Workshop Equipment:	
Batteries, all types	14,623
Hoists, lifts, jacks, etc	15,479
Miscellaneous workshop equipment	32,681
Power home tools, except saws	27,086
Power home workshop saws, all	60,845
Welding, soldering, cutting tools	18,367
Wires, cords, not specified	13,605
Workshop manual tools	95,219
Yard and Garden Equipment:	
Chain saws	36,248
Hand garden tools	37,795
Hatchets, axes	16,512
Lawn, garden care equipment	38,803
Lawn mowers, all types	57,019
Other power lawn equipment	17,664
Packaging & Containers, Household:	
Cans, other containers	171,602
Glass bottles, jars	70,738
Paper, cardboard, plastic products	31,139
Home Furnishings, Fixtures and Accessories:	
Bathtub, shower structures	116,454
Beds, mattresses, pillows	277,740
Carpets, rugs	69,019
Chairs, sofas, sofa beds	289,878
Desks, cabinets, shelves, racks	169,627
Electric fixtures, lamps, equipment	38,654
Ladders, stools	121,496
Mirrors, mirror glass	20,431
Miscellaneous household covers, fabrics	14,799
Other misc. furniture, accessories	39,677
Sinks, toilets	38,112
Tables, all types	263,592
Home Structures and Construction Materials:	
Cabinets or door hardware	16,868
Ceilings, walls, panels (inside)	193,520
Counters, counter tops	22,674
Fences	111,294
Glass doors, windows, panels	189,301
Handrails, railings, banisters	35,383
Miscellaneous construction materials	67,100
Nails, carpet tacks, etc	231,650
Nonglass doors, panels	298,337
Outside attached structures, materials	14,181
Porches, open side floors, etc	86,281
Stairs, ramps, landings, floors	1,464,224
Window, door sills, frames	39,857
Housewares:	
Cookware, pots, pans	26,064
Cutlery, knives, unpowered	352,542
Drinking glasses	117,596
Miscellaneous housewares	48,518
Scissors	19,753
Small kitchen appliances	36,781
Tableware and accessories	97,112
General Household Appliances:	
Cooking ranges, ovens, etc	38,367
Irons, clothes steamers (not toys)	16,533
Miscellaneous household appliances	24,883
Refrigerators, freezers	30,365
Washers, dryers	16,877
Heating, Cooling, and Ventilating Equipment:	
Chimneys, fireplaces	13,766
Fans (except stove exhaust fans)	16,770
Heating stoves, space heaters	33,357
Pipes, heating and plumbing	24,230
Radiators, all	18,163
Home Communication, Entertainment and Hobby Equipment:	
Miscellaneous hobby equipment	11,820
Pet supplies, equipment	13,841
Sound recording, reproducing equipment	30,362
Television sets	30,731
Personal Use Items:	
Cigarettes, lighters, fuel	20,648
Clothing, all	108,221
Grooming devices	22,577
Holders for personal items	13,912
Jewelry	35,002
Paper money, coins	22,936
Pencils, pens, other desk supplies	40,902
Razors, shavers, razor blades	40,187
Sewing equipment	30,524
Sports & Recreation Equipment:	
All-terrain vehicles, mopeds, minibikes	138,589
Barbecue grills, stoves, equipment	12,318
Bicycles, accessories	561,765
Exercise equipment	63,289
Horseback riding	48,542
Nonpowder guns, BB's, pellets	22,224
Playground equipment	200,804
Skateboards	91,664
Toboggans, sleds, snow disks, etc	35,028
Trampolines	14,666
Miscellaneous Products:	
Dollies, carts	33,123
Elevators, other lifts	12,401
Fireworks, flares	9,030
Gasoline and diesel fuels	15,733
Nursery equipment	86,096
Toys	130,873

Source: Consumer Product Safety Commission, National Electronic Injury Surveillance System.

[a] Estimated number of product-related injuries in the U.S. and territories which were treated in hospital emergency departments in 1987. Not all product categories are shown.

Fires

Causes of fires and fire deaths

Although heating equipment is associated with the greatest number of residential fires, cigarettes accounted for the greatest number of residential fire deaths, according to 1986 estimates derived from data provided by the U.S. Fire Administration (USFA) and the National Fire Protection Association (NFPA). Heating equipment was associated with 150,000 (26 per cent) of the 581,500 residential fires in 1986. Cooking equipment and electrical distribution were the next most common causes of fires with 20 per cent and 9 per cent, respectively, of the total.

For fire deaths, cigarettes were associated with 1,400 (29 per cent) of the 4,770 civilian fire deaths in 1986. The next most frequent causes of fire deaths were heating equipment (13 per cent) and electrical distribution (12 per cent).

Source: U.S. Consumer Product Safety Commission/EPHA, from data obtained from the USFA and NFPA.

Fire deaths and poverty

Poverty is associated with an increased risk of fire death in both urban and rural locations, according to a recent article[a] published in the National Fire Protection Association's *Fire Journal.* Circumstances and causes of the fires in urban poverty areas differ from those in rural poverty areas, however.

Heating equipment is associated with the greatest number of fires in rural areas, accounting for about 42 per cent of the fires in one study in the rural South, followed by smoking (20 per cent), cooking (13 per cent), and electrical distribution (9 per cent). The rural heating fire death problem is the result primarily of solid fuel heating equipment, such as wood stoves. By contrast, incendiary and suspicious fires are the leading cause of fires in urban poverty areas, followed by smoking and children playing.

The association's study of data from 50 reporting cities shows that for those cities with 10 per cent or less of the population below the poverty level, the median fire rate was 126 per 100,000 persons and the median death rate was 0.64 per 100,000. For the poorer cities with over 25 per cent of the population below the poverty level, the median fire and death rates increased dramatically to 265 and 4.56, respectively.

[a] Fahy, R.F. and Norton, A.L. How being poor affects fire risk. *Fire Journal,* January/February 1989, *83* (1), 28-36.

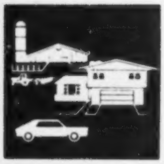
Smoke detectors

Although use of smoke detectors in residences has represented the greatest advance in fire safety of the last decade, growth of smoke detector use has slowed so that nearly one fifth of homes were still unprotected as of 1987.[a] Non-operational smoke detectors are also a growing problem, since about one fourth of all U.S. homes now have non-operational detectors. This means that only about 55 per cent of all U.S. residences have at least one working detector.

Dead or missing batteries was the main reason cited by researchers for non-operational detectors, representing about 61 per cent of the nonworking detectors. About 36 per cent were attributable to incorrect installation, most often placement in an incorrect location.

There is growing evidence which indicates that those households most at risk of fires are also those which are least likely to have detectors. The one fifth of all U.S. homes without detectors account for about three fifths of all home fires.

[a] Hall, John R., Jr. The latest statistics on U.S. home smoke detectors. *Fire Journal,* January/February 1989, *83* (1), 39-41.



FARM RESIDENT ACCIDENTS, 1988

	Deaths	Deaths per 100,000 Farm Residents	Disabling Injuries
Total	**2,800**	**56.6**	**250,000**
Motor-vehicle	**1,500**[a]	**30.3**	**60,000**
Work (farm residents only)	**900**[a]	**18.2**	**90,000**
In farm work	800	16.2	80,000
In nonfarm work off farm	100	2.0	10,000
Home	**500**	**10.1**	**80,000**
Public nonmotor-vehicle	**200**	**4.0**	**30,000**

[a] Motor-vehicle deaths and injuries in work activities are included in both the Motor-vehicle and Work totals. The duplication amounted to about 300 deaths and 10,000 injuries in 1988.

The farm resident figures above are National Safety Council estimates of all accidental deaths and injuries of persons who live on farms. Included are deaths and injuries from accidents which occurred to farm residents both on and off farm property. Excluded are those from accidents which occurred on farms to nonresidents of farms. Also excluded are agricultural work deaths and injuries of workers who were nonresidents of farms. The U.S. Bureau of the Census reports that nonfarm residents comprised 60 per cent of the average 3.4 million persons employed in agricultural industries in 1986.

The Census Bureau also reports that 1.4 million farm residents (49 per cent of the employed farm resident labor force) worked solely, or primarily in the case of multiple job holders, in agriculture in 1986. Of farm residents employed in nonagricultural industries in 1986, over one half worked in services or manufacturing.

In 1985, 346,000 multiple job holders combined primary employment in a nonagricultural industry with a secondary job (mostly self-employment) in agriculture. Because worker totals on page 32 include only persons with primary employment in agriculture, the accidental death rate for agriculture would be reduced slightly if the influence on accident exposure of individuals with secondary employment in agriculture is considered. Similar adjustments would also reduce rates for other industries.

Work deaths and death rates in agriculture

The term agriculture includes not only production of crops and livestock (farming), but also agricultural services, forestry, and fishing. (Forestry excludes logging which is included in the manufacturing industry group.) There were 1,500 agricultural work deaths in 1988, of which 800 involved farm residents in farm work and 700 involved nonfarm residents working on farms and anyone working in other industries classified as agriculture. The corresponding injury totals were 140,000 in agricultural work — 80,000 to farm residents and 60,000 to others.

The 900 farm resident work deaths shown above consist of 800 deaths in farm work (included in the agricultural total) and 100 deaths in nonfarm work off the farm.

The death rates shown above are comparable to other population death rates in *Accident Facts* but are not comparable to death rates based on workers only.

Tractor fatality rates on the farm

Overturns have the highest fatality rate for tractor accidents occurring on the farm according to reports from eight to ten states covering over one third of the farm tractors in the U.S. In 1988, overturns accounted for 44 per cent of all on-the-farm tractor fatalities reported, with an annual rate of 3.7 deaths per 100,000 tractors.

For all tractor fatalities combined, projecting the overall rate of 8.6 deaths per 100,000 tractors in this sample to the nation's approximately 4.42 million tractors yields an estimated 400 tractor-related deaths on the farm nationwide.

Tractor Fatality Rates on the Farm by Type of Accident, 1970-1988

Year	Deaths per 100,000 Tractors					Per Cent of Deaths				
	All Types	Over-turns	Run Over	Power Takeoff	Other	Total	Over-turns	Run Over	Power Takeoff	Other
1970	14.9	7.3	4.6	0.7	2.3	100%	49	31	5	15
1975	11.9	6.9	2.1	0.6	2.3	100%	58	18	5	19
1977	11.1	4.4	3.2	0.9	2.6	100%	40	29	8	23
1978	10.6	5.5	2.4	0.7	2.0	100%	52	23	6	19
1979	12.8	6.0	4.5	0.8	1.5	100%	47	35	6	12
1980	11.5	5.5	3.4	0.9	1.7	100%	48	29	8	15
1981	7.9	4.6	1.5	0.6	1.2	100%	58	20	7	15
1982	8.1	3.9	1.6	0.3	2.3	100%	49	20	4	27
1983	8.3	4.8	1.8	0.1	1.6	100%	58	22	1	19
1984	7.3	3.8	2.1	0.2	1.2	100%	52	29	2	17
1985	7.3	3.7	1.9	0.5	1.2	100%	51	26	7	16
1986	9.3	4.1	2.1	0.6	2.5	100%	44	23	6	27
1987	10.9	5.6	2.6	0.4	2.3	100%	52	24	3	21
1988	8.6	3.7	2.4	0.6	1.7	100%	44	29	7	20

Source: Deaths based on reports from vital statistics registrars and individual case reports; tractors based on U.S. Census of Agriculture, 1982, estimated for 1988 by *Implement & Tractor.*

Farm Work Injury Rates[a] by Family Status, Sex, Agricultural Operation and Age

Fruit farms have the highest work injury rate among various specified agricultural operations with 23.5 injuries per million hours of exposure. Grain farms have the lowest rate, 20.1. The rate for all farms is 20.0.

Among various age groups, 5 to 14 year olds have the highest rate, 27.2, and those aged 45 to 64 have the lowest rate, 17.8. In general, males have higher rates than females, and hired workers have higher rates than family members.

Agricultural Operation or Age of Worker	All Workers			Family Workers			Hired Workers		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
All Farms	**20.0[b]**	**21.8**	**13.5**	**19.5**	**21.7**	**13.1**	**21.7**	**22.2**	**17.4**
Beef	23.3	26.2	14.5	22.8	26.0	14.3	27.2	27.4	([c])
Dairy	22.3	24.3	16.0	20.6	22.6	15.1	32.5	31.9	42.8
Grain	20.1	21.9	13.7	20.3	22.4	14.0	18.5	19.4	([c])
Fruit	23.5	23.7	22.6	11.9	10.9	15.0	30.3	30.5	29.4
Other	15.6	17.2	8.7	16.3	18.5	8.5	13.7	14.3	9.7
All Ages	**20.0[b]**	**21.8**	**13.5**	**19.5**	**21.7**	**13.1**	**21.7**	**22.2**	**17.4**
5 to 14	27.2	32.3	15.2	27.6	32.6	15.8	22.7	28.7	([c])
15 to 24	24.4	25.9	16.8	22.6	24.0	16.5	27.8	29.0	17.7
25 to 44	19.1	21.2	12.1	19.1	22.0	11.3	19.2	19.3	18.8
45 to 64	17.8	19.2	13.3	17.8	19.4	13.1	17.8	17.8	18.2
65 and over	19.5	20.4	15.1	19.5	20.4	15.8	19.2	20.4	([c])

Source: Based on 4,105 cases from 35 state farm accident surveys.

[a] Farm work injuries per million hours exposure. Includes injury to any person working on a farm which required professional medical care or resulted in one half day or more time lost from usual activities.

[b] Rate is based on cases that could be classified by age, sex, family status and agricultural operation of worker, with unclassified cases distributed appropriately.

[c] Insufficient data for rate calculation.

Accidental Deaths of Farm Residents by Class, 1969-1988

Year	Total	Motor-Vehicle[a]	Work[a]	Home	Public	Farm Population[b]	Death Rate[c]
1969	6,900	3,500	1,900	1,400	750	10,000	69.0
1970	6,600	3,400	1,800	1,300	750	9,712	68.0
1971	6,300	3,200	1,700	1,300	750	9,425	66.8
1972	6,400	3,300	1,700	1,300	750	9,610	66.6
1973	6,300	3,200	1,700	1,250	800	9,472	66.5
1974	5,800	2,800	1,600	1,200	750	9,264	62.6
1975	5,700	2,700	1,800	1,100	700	8,864	64.3
1976	5,600	2,800	1,700	1,000	650	8,253	67.9
1977	5,300	2,700	1,600	900	600	7,806	67.9
1978 (Old Defn.)[d]	5,400	2,800	1,600	900	600	8,005	67.5
1978 (New Defn.)[d]	4,400	2,300	1,300	750	450	6,501	67.7
1979	4,200	2,200	1,300	700	400	6,241	67.3
1980	4,000	2,100	1,300	700	350	6,051	66.1
1981	3,700	2,000	1,200	600	300	5,850	63.2
1982	3,300	1,700	1,100	600	250	5,628	58.6
1983	3,200	1,600	1,100	600	250	5,787	55.3
1984	3,200	1,700	1,000	600	250	5,754	55.6
1985	3,000	1,500	1,000	550	300	5,355	56.0
1986	2,900	1,600	1,000	450	250	5,226	55.5
1987	2,800	1,500	1,000	450	150	4,986	56.2
1988[e]	2,800	1,500	900	500	200	4,951	56.6

Source: National Safety Council estimates.

[a] See footnotes to the table on page 97.

[b] Census Bureau figures (000 omitted), except 1969 which is a National Safety Council estimate.

[c] Deaths per 100,000 farm residents.

[d] A new farm definition became effective in 1978. The first figures for 1978 are comparable with those for earlier years; the second with those for later years.

[e] Preliminary.

The tables on this page are not comparable. The *upper table* shows National Safety Council estimates of all accidental deaths of persons who lived on farms. For description of inclusions and exclusions, see first paragraph on page 97. The *lower table* shows deaths from injuries which occurred on farms to all persons, primarily farm residents, but includes others such as nonresident workers, hunters, and visitors. Excluded are farm home accidental deaths, transport deaths, and deaths of farm residents from accidents which occurred off farm property. Tabulations are understated as not all death certificates indicate place of accident.

Nontransport Deaths from Accidents on Farms by Type, 1967-1986

(excluding farm home deaths)

Year	All Types[a]	Machinery	Drowning	Firearms	Falls	Struck by Obj.	Fires, Burns	Elec. Curr.	Animals	Poisoning	Suffocation	Lightning
1967	2,183	912	350	220	153	130	96	72	72	42	36	23
1969	1,954	467[b]	317	180[b]	121	350[b]	74[b]	71	78	26	56[b]	27
1970	1,795	444	282	155	125	310	57	83	63	39	46	29
1971	1,717	428	268	148	112	269	59	59	69	31	47	29
1972	1,712	452	262	142	120	262	40	64	70	28	54	26
1973	1,769	447	262	146	119	285	40	72	82	29	51	22
1974	1,617	377	234	109	118	292	30	86	54	41	50	21
1975	1,672	476	209	115	105	284	26	93	45	35	52	24
1976	1,438	372	175	88	84	277	44	76	59	29	42	14
1977	1,383	327	163	73	94	276	37	90	52	23	38	18
1978	1,346	325	166	90	85	272	30	75	33	34	49	20
1979	1,276	627[b]	142	74	56[b]	112[b]	15	64	40	23	38	13
1980	1,309	557	199	77	67	127	37	67	44	30	46	2
1981	1,192	550	117	93	57	111	41	64	44	11	37	8
1982	1,219	538	143	78	67	108	21	82	44	30	27	13
1983	1,089	517	118	80	55	92	20	36	38	34	24	8
1984	989	469	98	73	51	101	19	34	31	28	32	12
1985	1,006	477	101	86	55	102	26	27	32	17	29	6
1986[c]	974	457	109	56	52	79	17	36	46	21	40	8

Source: National Center for Health Statistics, *Vital Statistics of the United States* (1968 data not tabulated), except 1981 and 1982, *Multiple Cause-of-Death for ICD-9 1981 (1982) Data* (counts for selected states based on a 50 per cent sample).

[a] Includes some deaths not shown separately.

[b] Data not comparable with previous years due to classification changes in 1969 and 1979.

[c] Latest official figures.

Farm definition (effective 1978): A rural place from which $1,000 or more of agricultural products were sold, or normally would have been sold, in the reporting year.

ENVIRONMENTAL HEALTH

Hazardous waste sites

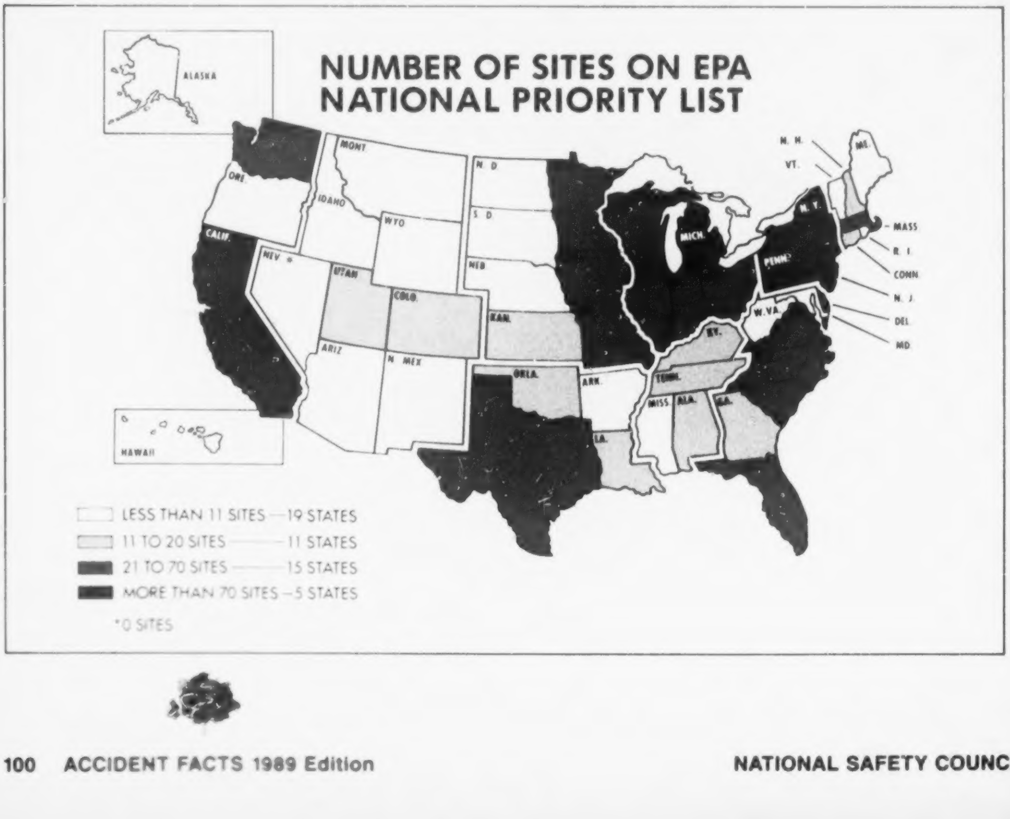
In 1980, the U.S. Congress passed legislation creating a program known as the Superfund, authorizing the Environmental Protection Agency (EPA) to fund and administer the clean-up of toxic waste sites in the U.S. Although about $1 billion per year in revenue is currently generated by the Superfund, the increase in number of sites and clean-up costs at each site have limited the success of the program.

About 10,000 sites in the U.S. eventually may need clean-up efforts, with a total cost of more than $300 billion. Currently, 1,173 sites have been designated on the EPA's national priority list. To date, 43 toxic waste dumps have been cleaned, costing a total of $4 billion.

In 1986, additional legislation was passed attempting to toughen the original statute, and extending Superfund rules for the first time to lands owned by the federal government. It is estimated that there are currently 3,000 toxic waste sites at 17 U.S. Department of Energy nuclear weapons plants, 6,000 hazardous dumps at 600 military installations, and 7,200 restricted waste areas on properties formerly owned by the Department of Defense. About 125 military installations are on or slated for EPA's national priority list. Clean-up of all military installations and nuclear weapons plants is estimated at about $130 billion.

The map below shows by state the number of toxic waste sites currently on the EPA's national priority list.

Source: Carpenter, B. Superfund, superflop. *U.S. News & World Report*, February 6, 1989, *106* (5), 47-49; Satchell, M. Uncle Sam's toxic folly. *U.S. News & World Report*, March 27, 1989, *106* (12), 20-22.



NUMBER OF SITES ON EPA NATIONAL PRIORITY LIST

ALASKA
HAWAII
MONT
N. D
S D
ORE
IDAHO
WYO
CALIF
NEV *
UTAH
COLO
NEB
KAN
ARIZ
N MEX
OKLA
ARK
LA
MISS
ALA
GA
TENN
KY
W.VA
MICH
PENN
N.Y.
N. H.
VT.
ME.
MASS
R. I.
CONN
N. J.
DEL
MD
LESS THAN 11 SITES—19 STATES
11 TO 20 SITES—11 STATES
21 TO 70 SITES—15 STATES
MORE THAN 70 SITES—5 STATES
*0 SITES

OTHER SOURCES

The following organizations may be useful for obtaining more current data or more detailed information on various subjects in *Accident Facts.*

American Automobile Association
8111 Gatehouse Road
Falls Church, VA 22047
(703) 222-6621

American National Standards Institute
1430 Broadway
New York, NY 10018
(212) 354-3300

Centers for Disease Control
Atlanta, GA 30333
(404) 639-3311

Federal Highway Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-0660

Federal Railroad Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-0881

Insurance Information Institute
110 William Street
New York, NY 10038
(212) 669-9200

Insurance Institute for Highway Safety
1005 N. Glebe Road
Arlington, VA 22201
(703) 247-1500

Mine Safety & Health Administration
Health & Safety Analysis Center
Division of Mining Information
P.O. Box 25367
Denver, CO 80225
(303) 236-2713

Motor Vehicle Manufacturers Association of the U.S., Inc.
320 New Center Building
Detroit, MI 48202
(313) 872-4311

National Center for Health Statistics
3700 East-West Highway
Hyattsville, MD 20782
(301) 436-8500

National Clearinghouse on Alcohol Information
P.O. Box 2345
Rockville, MD 20852
(301) 468-2600

National Clearinghouse on Drug Abuse Information
P.O. Box 416
Kensington, MD 20795
(301) 468-2600

National Collegiate Athletic Association
P.O. Box 1906
Mission, KS 66201
(913) 384-3220

National Fire Protection Association
Batterymarch Park
Quincy, MA 02210
(617) 770-3000

National Highway Traffic Safety Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-0123

National Athletic Injury/Illness Reporting System (NAIRS)
Penn State University
Sports Research Building
University Park, PA 16802
(814) 865-9593

National Institute for Occupational Safety and Health
(Health inquiries)
4676 Columbia Parkway, Cincinnati, OH 45226
(Safety inquiries)
944 Chestnut Ridge Rd., Morgantown, WV 26505

National School Transportation Association
P.O. Box 2639
Springfield, VA 22152
(703) 644-0700

National Society to Prevent Blindness
500 E. Remington Road
Schaumburg, IL 60173
(312) 843-2020

National Spinal Cord Injury Association
149 California Street
Newton, MA 02158
(617) 964-0521

National Sporting Goods Association
1699 Wall Street
Mt. Prospect, IL 60056
(312) 439-4000

National Transportation Safety Board
800 Independence Avenue, SW
Washington, DC 20594
(202) 382-6600

Outdoor Power Equipment Institute
1725 K Street, NW, Suite 903
Washington, DC 20006
(202) 296-3484

Social Security Administration
6401 Security Boulevard
Baltimore, MD 21235
(301) 594-7700

Transportation Policy Associates
P.O. Box 33633
Farragut Station
Washington, DC 20033
(202) 638-5244

Transportation Research Board
2101 Constitution Avenue, NW
Washington, DC 20418
(202) 334-2935

U.S. Coast Guard
2100 2nd Street, SW
Washington, DC 20593
(202) 267-2229

U.S. Consumer Product Safety Commission
National Injury Information Clearinghouse
5401 Westbard Avenue, Rm. 323
Bethesda, MD 20207
(301) 492-6424

U.S. Department of the Census
Public Information Office
Department of Commerce
Washington, DC 20233
(301) 763-4051

U.S. Department of Labor
441 G Street, NW
Washington, DC 20212
(202) 523-1221 (BLS inquiries)
(202) 523-8150 (OSHA inquiries)

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Definitions of Certain Terms Used in *Accident Facts*

Accident is that occurrence in a sequence of events which usually produces unintended injury, death or property damage.

Accident type describes the occurrence leading to injury or property damage.

Agency or **agent** is the principal object such as tool, machine, or equipment involved in the accident and is usually the object inflicting injury or property damage.

Day (motor-vehicle accidents) is the time interval between sunrise and sunset.

Death from accident is a death which occurs within one year of the accident.

Disabling injury is an injury causing death, permanent disability, or any degree of temporary total disability beyond the day of the accident.

Farm, see page 99.

Fatal accident is an accident which results in one or more deaths within one year.

Home is a dwelling and its premises within the property lines, including, in addition to the usual single-family dwellings and apartment houses, duplex dwellings, boarding and rooming houses, and seasonal cottages. Excluded from Home are barracks, dormitories, and resident institutions.

Incidence rate, as defined by OSHA, is the number of injuries and/or illnesses or lost workdays per 100 full-time employees. See also page 41.

Injury is physical harm or damage to the body resulting from an exchange, usually acute, of mechanical, chemical, thermal, or other environmental energy that exceeds the body's tolerance.

Motor vehicle is any mechanically or electrically powered device (except one moved by human power), not operating on rails, upon which or by which any person or property may be transported upon a land highway. The load on a motor vehicle or trailer attached to it, is considered part of the vehicle. Tractors and motorized machinery are included while self-propelled in transit or used for transportation. Also included are motor scooters, motorized bicycles and snowmobiles.
Nonmotor vehicle is any vehicle other than a motor vehicle, **except** a coaster wagon, child's sled, child's tricycle, child's scooter, wheelchair, roller skates, ice skates, skis, baby carriage, and similar means of transportation; persons using these latter means of transportation are considered pedestrians.

Motor-vehicle accident is any accident involving a motor vehicle in transport (in motion, in readiness for motion, or on a roadway, but not parked in a designated parking area) that results in death, injury or property damage. For descriptions of different types of motor-vehicle accidents, see pages 50 and 51.

Motor-vehicle traffic accident is a motor-vehicle accident which occurs on a trafficway—a way or place, any part of which is open to the use of the public for the purposes of vehicular traffic.

Motor-vehicle nontraffic accident is any motor-vehicle accident which occurs entirely in any place other than a trafficway.

Night (motor-vehicle accident) is the time interval between sunset and sunrise.

Nonfatal injury accident is an accident in which at least one person is injured, and no injury terminates fatally.

OSHA, see page 41 for Occupational Safety and Health Administration definitions.

Pedalcycle is a vehicle propelled by human power and operated solely by pedals; excludes mopeds.

Pedestrian is any person involved in a motor-vehicle accident who is not in or upon a motor vehicle or non-motor vehicle. (See definition of motor vehicle.) Included as pedestrians are persons injured while using a coaster wagon, child's tricycle, roller skates, etc. Excluded are persons boarding, alighting, jumping or falling from a motor vehicle in transport.

Permanent disability (or permanent impairment) includes any degree of permanent nonfatal injury. It includes any injury which results in the loss, or complete loss of use, of any part of the body, or any permanent impairment of functions of the body or a part thereof.

Property damage accident is an accident which results in property damage, but in which no person is injured.

Public accident is any accident other than motor-vehicle that occurs in the public use of any premises. Includes deaths in recreation (swimming, hunting, etc.), transportation except motor-vehicle, public buildings, etc., and deaths from widespread natural disasters even though some may have happened on home premises. Excludes accidents to persons in the course of gainful employment.

Rural (for motor-vehicle reporting) includes places of less than 5,000 inhabitants, except those classified as urban by the U.S. Census Bureau. (See urban definition below.)

School bus, see page 68.

Temporary total disability is an injury which does not result in death or permanent disability, but which renders the injured person unable to perform regular duties or activities on one or more full calendar days after the day of the injury.

Urban (for motor-vehicle reporting) includes places of 5,000 or more inhabitants, and the towns, townships, and other areas classified as urban by the U.S. Census Bureau.

Work hours are the total number of hours worked by all employees. They are usually compiled for various levels, such as, an establishment, a company, or an industry. A work hour is the equivalent of one employee working one hour.

Work injuries (including occupational illnesses) are those which arise out of and in the course of gainful employment regardless of where the accident occurs. Excluded are work injuries to private household workers and injuries occurring in connection with farm chores which are classified as home injuries. (For OSHA definitions, see page 41.)

Workers are all persons gainfully employed, including owners, managers, other paid employees, the self-employed, and unpaid family workers, but excluding private household workers.

ACCIDENT FACTS 1989 EDITION

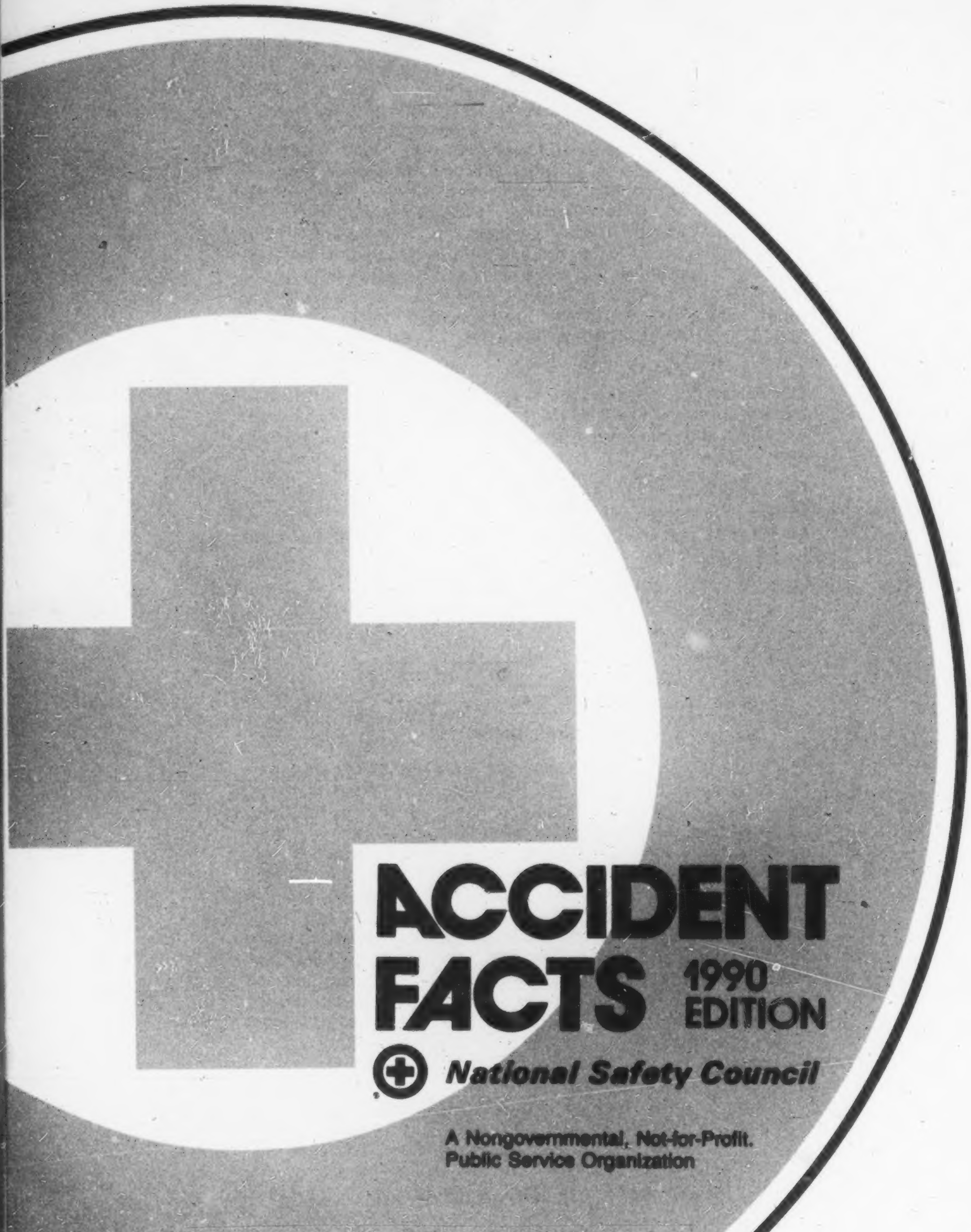
35M889 Printed in U.S.A. 02169-0000

18375-24 9/90

ACCIDENT FACTS

1990 EDITION

National Safety Council



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National Safety Council

A Nongovernmental, Not-for-Profit,
Public Service Organization

The National Safety Council, chartered by act of Congress, is a nongovernmental, not-for-profit, public service organization devoted solely to educating and influencing society to adopt safety and health policies, practices, and procedures to prevent losses arising from accidents and adverse occupational or environmental exposures. *Accident Facts*, the Council's annual statistical report on accidental deaths, injuries, and costs, was prepared by the Statistics Department under the direction of **Alan F. Hoskin**, Manager, by **Karen Ginsburg, Mary E. Johnston, Steven R. Landes, Terry Miller**, and **Ursula Zuehlke.** Production management was provided by **Katie Kuhfuss.** Art, graphs, and charts were created under the direction of **Frank Waszak**, Art Director, by **Bob Sunyog.** Work injury and illness incidence rates and fleet accident rates of reporters to the National Safety Council were prepared by the Safety and Health Motivation Programs Department under the direction of **Gilbert Riley**, Manager, by **Jean Adams** and **Rachael Corp.**

Questions or comments about the content of *Accident Facts* should be directed to the Statistics Department, National Safety Council, 444 North Michigan Avenue, Chicago, IL 60611, telephone 312-527-4800.

For price and ordering information, write Customer Service, National Safety Council, 444 North Michigan Avenue, Chicago, IL 60611, or telephone 800-621-7619 (outside Illinois) or 312-527-4800 (inside Illinois), extension 6900.

Acknowledgements

The information presented in *Accident Facts* was made possible by the cooperation of many organizations and individuals including state vital and health statistics authorities, state and city traffic authorities, state workers' compensation authorities, state and local safety councils, trade associations, Bureau of the Census, Bureau of Labor Statistics, Consumer Product Safety Commission, Federal Railroad Administration, Federal Highway Administration, National Center for Health Statistics, National Fire Protection Association, National Highway Traffic Safety Administration, National Transportation Safety Board, National Weather Service, Mine Safety and Health Administration, Social Security Administration, Statistics Canada, and World Health Organization. Specific contributions are acknowledged in footnotes and source notes throughout the book.

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Suggested citation: National Safety Council. (1990). *Accident Facts, 1990 Edition*. Chicago: Author.

Printed in U.S.A. ISBN 0-87912-149-1 02170-0000

FOREWORD

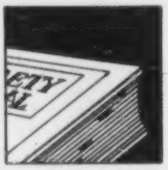
More progress was made in reducing the impact of accidental deaths during the decade of the 1980s than in any other decade of this century. From 1979 to 1989, total annual accidental deaths were reduced more than 10 per cent, from 105,312 to an estimated 94,500. At the same time the population death rate was reduced almost 19 per cent from 46.9 to 38.1 deaths per 100,000 population per year. Much of this overall progress was due to a 12 per cent reduction (also the greatest decade-long decrease) in annual motor-vehicle-related deaths, which make up nearly half of all accidental deaths. A 10 per cent reduction in public deaths and a 20 per cent reduction in work-related deaths also contributed. Home accidental deaths, which had declined in the middle of the decade, returned to the 1979 level. Historical class totals and population death rates can be found in the table on pages 26-27. Discussions of the ten-year trends in accidental deaths may be found on pages 23, 75, 89, and 99.

This 70th edition of *Accident Facts* has been expanded by eight pages, bringing the total to 112 pages. This is the largest the book has been since 1942. Many of the pages also have been rearranged to present the information in a more logical order. Generally, each major section begins with current estimates, followed by special articles, and then historical tables. New regular features include:

- A comprehensive table of contents has been added on page iv.
- More state-level fatality data are now included. Pages 18-19 show state *vs* type of accident and page 20 shows state *vs* place of accident.
- Historical graphs of the Bureau of Labor Statistics occupational injury and illness incidence rate estimates are shown on page 44.
- A table summarizing state motor-vehicle laws on alcohol, occupant restraints, and speed limits is given on page 55.

There are also several new special articles in this edition of *Accident Facts.* The Work section has articles on chemical and heat burns and work-related motor-vehicle injuries (pages 40-42). The Motor-Vehicle section has a special on elderly drivers (page 63). An article on accidental deaths and injuries of older Americans is in the Home section (page 98). The Environmental Health section covers sources of radiation exposure (page 103).

We hope readers find these changes useful and worthwhile. Comments and suggestions concerning the content of *Accident Facts* are welcome.



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ALL ACCIDENTS, 1989

For the eighth consecutive year, accidental deaths were estimated to number less than 100,000 in 1989. The death total was 94,500, a decrease of 2,000 or 2 per cent from the 1988 total of 96,500. An increase in public deaths was offset by decreases in work and motor-vehicle. Home deaths were unchanged.

The death rate per 100,000 population, 38.1, was down 3 per cent from the rate of 39.3 in 1988. The population rate for 1989 work deaths is the lowest on record. The 1989 motor-vehicle death rate per 100 million miles (not shown below) was 2.25, also the lowest on record.

	Deaths	Change from 1988	Deaths per 100,000 Persons	Disabling Injuries[a]
All Classes[b]	**94,500**	**−2%**	**38.1**	**9,000,000**
Motor-vehicle	**46,900**	**−4%**	**18.9**	**1,700,000**
Public nonwork	42,800			1,500,000
Work	3,900			200,000
Home	200			([c])
Work	**10,400**	**−4%**	**4.2**	**1,700,000**
Nonmotor-vehicle	6,500			1,500,000
Motor-vehicle	3,900			200,000
Home	**22,500**	**0%**	**9.1**	**3,400,000**
Nonmotor-vehicle	22,300			3,400,000
Motor-vehicle	200			([c])
Public	**19,000**	**+3%**	**7.7**	**2,400,000**

Disabling Injuries[a] by Severity of Injury, 1989

Severity of Disabling Injury	TOTAL[b]	Motor-Vehicle	Work	Home	Public
All Disabling Injuries[a]	**9,000,000**	**1,700,000**	**1,700,000**	**3,400,000**	**2,400,000**
Permanent impairments	340,000	140,000	60,000	90,000	60,000
Temporary total disabilities	8,600,000	1,600,000	1,600,000	3,300,000	2,300,000

Source: National Safety Council estimates (rounded) based on data from the National Center for Health Statistics, state industrial commissions, state traffic authorities, state departments of health, insurance companies, industrial establishments and other sources. See glossary on page 105 for definitions.

[a] **Disabling beyond the day of accident.** Injuries are not reported on a national basis, so the totals shown are approximations based on ratios of disabling injuries to deaths developed from special studies. The totals are the best estimates for the current year; however, they should not be compared with totals shown in previous editions of *Accident Facts* to indicate year-to-year changes or trends.

[b] Deaths and injuries above for the four separate classes total more than national figures due to rounding and because some deaths and injuries are included in more than one class. For example, 3,900 work deaths involved motor vehicles and are in both the work and motor-vehicle totals; and 200 motor-vehicle deaths occurred on home premises and are in both home and motor-vehicle. The total of such duplication amounted to about 4,100 deaths and 200,000 injuries in 1989.

[c] Less than 10,000.

Costs of accidents in 1989

Accidents in which deaths or disabling injuries occurred, together with vehicle accidents and fires, cost the nation in 1989, at least

$148.5 billion

Motor-vehicle accidents . . . . $72.2 billion

This cost figure includes wage loss, medical expense, insurance administration cost, and insured property damage from moving motor-vehicle accidents. Not included are the cost of public agencies such as police and fire departments, courts, indirect losses to employers of off-the-job accidents to employees, the value of cargo losses in commercial vehicles, and damages awarded in excess of direct losses. Fire damage to parked motor-vehicles is not included here but is distributed to the other classes.

3

Work accidents . . . . $48.5 billion

This cost figure includes wage loss, medical expense, insurance administration cost, fire loss, and an estimate of indirect costs arising out of work accidents. Not included is the value of property damage other than fire loss, and indirect loss from fires.

Home accidents . . . . $18.2 billion

This cost figure includes wage loss, medical expense, health insurance administration cost, and fire loss. Not included are the costs of property damage other than fire loss, and the indirect cost to employers of off-the-job accidents to employees.

Public accidents . . . . $12.5 billion

This cost figure includes wage loss, medical expense, health insurance administration cost, and fire loss. Not included are the costs of property damage other than fire loss, and the indirect cost to employers of off-the-job accidents to employees.

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4

Certain Costs of Accidents by Class, 1989 ($ billions)

Cost	TOTAL[a]	Motor-Vehicle	Work	Home	Public Nonmotor-Vehicle
Total	**$148.5**	**$72.2**	**$48.5**	**$18.2**	**$12.5**
Wage loss	37.7	19.5	8.3	6.1	5.5
Medical expense	23.7	5.2	8.1	6.6	5.0
Insurance administration[b]	28.4	20.7	6.1	0.9	0.7
Fire loss	9.4	(c)	3.5	4.6	1.3
Motor-vehicle property damage	26.8	26.8	(c)	(c)	(c)
Indirect work loss	22.5	(c)	22.5	(c)	(c)

Source: National Safety Council estimates. Cost estimates are not comparable with those of previous years. As additional or more precise data become available, they are used from that year forward, but previously estimated figures are not revised.

[a] Duplications between work and motor-vehicle and home and motor-vehicle are eliminated in the totals.

[b] Home and public insurance administration costs may include costs of administering medical treatment claims for some motor-vehicle injuries filed through health insurance plans.

[c] Not included, see comments by class of accident above.

1989 accident cost components

TOTAL—ALL ACCIDENTS[a] . . . . $148.5 billion

These costs include:

Wage loss . . . . $37.7 billion

Since, theoretically, a worker's contribution to the wealth of the nation is measured in terms of wages, then the total of wages lost due to accidents provides a measure of this lost productivity. For nonfatal injuries, actual wage losses are used; for fatalities and permanent disabilities, the figure used is the present value of all future earnings lost.

5

Medical expense . . . . $23.7 billion

Doctor fees, hospital charges, the cost of medicines, ambulance and emergency medical services, and future medical costs incurred as the result of accidental injuries are included.

Insurance administration cost . . . . $28.4 billion

This is the difference between premiums paid to insurance companies and claims paid out by them; it is their cost of doing business and is a part of the accident cost total. Claims paid by insurance companies are not identified separately, as every claim is compensation for losses such as wages, medical expenses, property damage, etc., which are included in other categories above and below. *Not* included are administrative costs of health maintenance organizations and property damage claims in home and public accidents.

Property damage in motor-vehicle accidents . . . . $26.8 billion

Includes the value of insured property damage to vehicles from moving motor-vehicle accidents. The damage is valued at the cost to repair the vehicle or the market value of the vehicle when damage exceeds its market value. The cost of minor damage (such as scratches or dents incurred while parking) is considered part of the normal wear and tear to vehicles and is not included.

Fire loss . . . . $ 9.4 billion

Includes losses from building fires of $8.1 billion and from nonbuilding fires, of $1.3 billion. By class of accident these totals break down as follows: building—work $2.9 billion, home $4.4 billion, public $0.8 billion; nonbuilding—work $0.6 billion, home $0.2 billion, public $0.5 billion.

Indirect loss from work accidents . . . . $22.5 billion

This is the money value of time lost by noninjured workers. Includes time spent filling out accident reports, giving first aid to injured workers, and time lost due to production slowdowns. This loss is conservatively estimated as equal to the sum of lost wages, medical expenses, and insurance administration cost of work accidents.

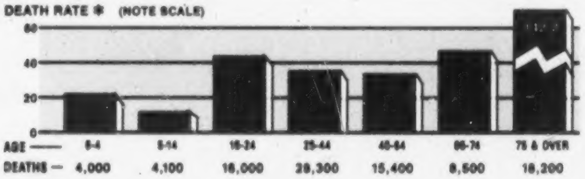
See source and footnotes on page 2.

How people died accidentally in 1989

Type of accident and age of victim

All accidents

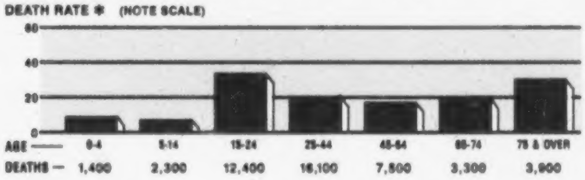
	Death Total	Change from 1988	Death Rate[a]
All accidents	94,500	- 2%	38.1



The term "accidents" covers most deaths from injury and poisoning. Excluded are homicides, suicides, deaths for which none of these categories can be determined, and war deaths.

Motor-vehicle accidents

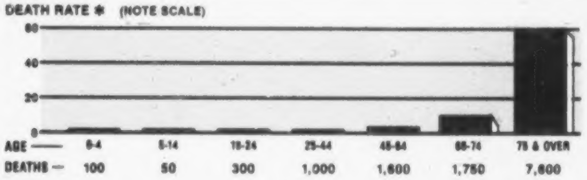
	Death Total	Change from 1988	Death Rate[a]
Motor-vehicle accidents	46,900	- 4%	18.9



Includes deaths involving mechanically or electrically powered highway-transport vehicles in motion (except those on rails), both on and off the highway or street.

Falls

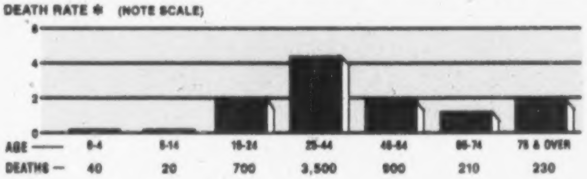
	Death Total	Change from 1988	Death Rate[a]
Falls	12,400	+ 2%	5.0



Includes deaths from falls from one level to another or on the same level. Excludes falls in or from transport vehicles, or while boarding or alighting from them.

Poisoning by solids and liquids

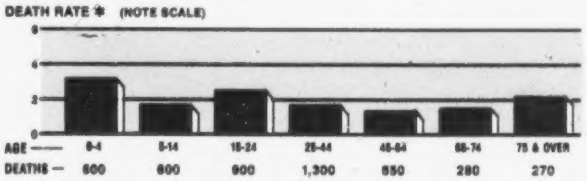
	Death Total	Change from 1988	Death Rate[a]
Poisoning by solids and liquids	5,600	+10%	2.3



Includes deaths from drugs, medicines, mushrooms and shellfish, as well as commonly recognized poisons. Excludes poisonings from spoiled foods, salmonella, etc., which are classified as disease deaths.

Drowning

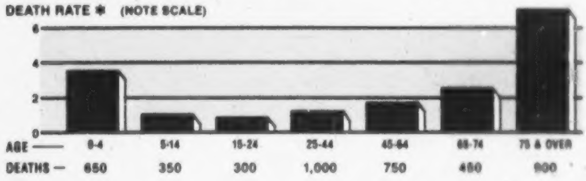
	Death Total	Change from 1988	Death Rate[a]
Drowning	4,600	0%	1.9



Includes all drownings (work and nonwork) in boat accidents and those resulting from swimming, playing in the water, or falling in. Excludes drownings in floods and other cataclysms.

Fires, burns, and deaths associated with fires

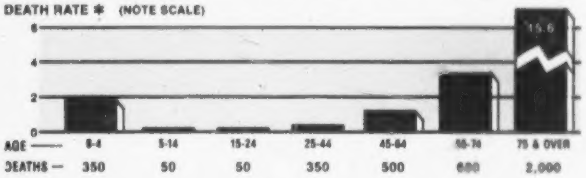
	Death Total	Change from 1988	Death Rate°
Fires, burns, and deaths associated with fires	4,400	-6%	1.8



Includes death from fires, burns, and from injuries in conflagrations—such as asphyxiation, falls, and struck by falling objects. Excludes burns from hot objects or liquids.

Suffocation by ingested object

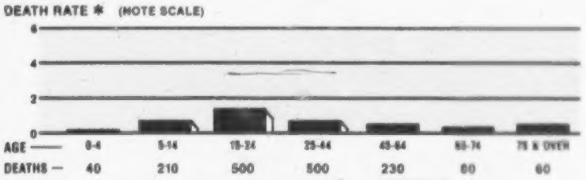
	Death Total	Change from 1988	Death Rate°
Suffocation by ingested object	3,900	-3%	1.6



Includes deaths from accidental ingestion or inhalation of objects or food resulting in the obstruction of respiratory passages.

Firearms

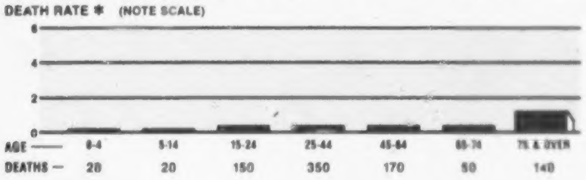
	Death Total	Change from 1988	Death Rate°
Firearms	1,600	+7%	0.6



Includes deaths in firearms accidents principally in recreational activities or on home premises. Excludes deaths from explosive material or in war operations.

Poisoning by gases and vapors

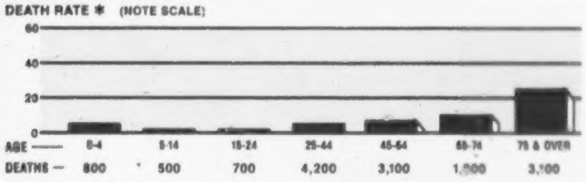
	Death Total	Change from 1988	Death Rate°
Poisoning by gases and vapors	900	0%	0.4



Mostly carbon monoxide due to incomplete combustion, involving cooking and heating equipment and standing motor vehicles. Excludes deaths in conflagrations, or associated with transport vehicles in motion.

All other types

	Death Total	Change from 1988	Death Rate°
All other types	14,200	-3%	5.7



Most important types included are: medical complications, air transport, machinery, mechanical suffocation, and struck by falling object.

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*Deaths per 100,000 population in each age group.

°Deaths per 100,000 population.

Accidents versus other causes of death

Accidents are the leading cause of death among all persons aged 1 to 37. Among persons of all ages, accidents are the fourth leading cause of death. The following table shows the number of deaths and death rates by age by leading causes in 1987 (latest official figures) separately for male and female.

For youths 15 to 24 years old, accidents claim about three times more lives than the next leading cause of death. More than three out of four accident victims in this age group are males.

Deaths and Death Rates by Age and Sex, 1987

Cause	Number of Deaths			Death Rates[2]		
	Total	Male	Female	Total	Male	Female
All Ages						
All Causes	**2,123,323**	**1,107,958**	**1,015,365**	**872.3**	**934.7**	**813.1**
Heart disease	760,353	385,217	375,136	312.4	325.0	300.4
Cancer	476,927	254,653	222,274	195.9	214.8	178.0
Stroke (cerebrovascular disease)	149,835	59,061	90,774	61.6	49.8	72.7
Accidents	**95,020**	**64,816**	**30,204**	**39.0**	**54.7**	**24.2**
Motor-vehicle	48,290	33,904	14,386	19.8	28.6	11.5
Falls	11,733	6,203	5,530	4.8	5.2	4.4
Drowning	5,100	4,207	893	2.1	3.5	0.7
Fires, burns	4,710	2,863	1,847	1.9	2.4	1.5
Poison (solid, liquid)	4,415	3,119	1,296	1.8	2.6	1.0
Chronic obstructive pulmonary disease	78,380	47,039	31,341	32.2	39.7	25.1
Pneumonia	69,225	33,562	35,663	28.4	28.3	28.6
Diabetes mellitus	38,532	16,237	22,295	15.8	13.7	17.9
Suicide	30,796	24,272	6,524	12.7	20.5	5.2
Chronic liver disease, cirrhosis	26,201	17,051	9,150	10.8	14.4	7.3
Atherosclerosis	22,474	8,428	14,046	9.2	7.1	11.2
Nephritis and nephrosis	22,052	10,872	11,180	9.1	9.2	9.0
Homicide	21,103	15,855	5,248	8.7	13.4	4.2
Under 1 Year						
All Causes	**38,408**	**21,798**	**16,610**	**1,012.6**	**1,122.5**	**896.9**
Certain conditions originating in perinatal period	18,070	10,348	7,722	476.4	532.9	417.0
Congenital anomalies	7,884	4,232	3,652	207.9	217.9	197.2
Sudden infant death syndrome	5,230	3,123	2,107	137.9	160.8	113.8
Heart disease	950	545	405	25.0	28.1	21.9
Accidents	**950**	**524**	**426**	**25.0**	**27.0**	**23.0**
Motor-vehicle	201	97	104	5.3	5.0	5.6
Mechanical suffocation	200	117	83	5.3	6.0	4.5
Ingestion of food, object	159	95	64	4.2	4.9	3.5
Fires, burns	116	59	57	3.1	3.0	3.1
Drowning	106	63	43	2.8	3.2	2.3
Pneumonia	674	381	293	17.8	19.6	15.8
Homicide	273	155	118	7.2	8.0	6.4
1 to 4 Years						
All Causes	**7,473**	**4,261**	**3,212**	**51.6**	**57.5**	**45.4**
Accidents	**2,921**	**1,799**	**1,122**	**20.2**	**24.3**	**15.9**
Motor-vehicle	989	561	428	6.8	7.6	6.1
Fires, burns	704	427	277	4.9	5.8	3.9
Drowning	664	452	212	4.6	6.1	3.0
Ingestion of food, object	118	76	42	0.8	1.0	0.6
Falls	68	43	25	0.5	0.6	0.4
Congenital anomalies	924	492	432	6.4	6.6	6.1
Cancer	548	300	248	3.8	4.0	3.5
5 to 14 Years						
All Causes	**8,743**	**5,579**	**3,164**	**25.6**	**31.9**	**19.0**
Accidents	**4,198**	**2,913**	**1,285**	**12.3**	**16.7**	**7.7**
Motor-vehicle	2,397	1,589	808	7.0	9.1	4.8
Drowning	593	473	120	1.7	2.7	0.7
Fires, burns	392	227	165	1.1	1.3	1.0
Firearms	210	176	34	0.6	1.0	0.2
Falls	57	50	7	0.2	0.3	(3)
Cancer	1,138	670	468	3.3	3.8	2.8
Congenital anomalies	448	265	183	1.3	1.5	1.1

See footnotes on page 7.

Deaths and Death Rates by Age and Sex, 1987, Cont.

Cause	Number of Deaths			Death Rates[a]		
	Total	Male	Female	Total	Male	Female
	15 to 24 Years					
All Causes	**38,023**	**28,231**	**9,792**	**99.4**	**146.1**	**51.7**
Accidents	**18,695**	**14,313**	**4,382**	**48.9**	**74.1**	**23.2**
Motor-vehicle	14,447	10,719	3,728	37.8	55.5	19.7
Drowning	1,097	992	105	2.9	5.1	0.6
Firearms	433	396	37	1.1	2.0	0.2
Poison (solid, liquid)	432	306	126	1.1	1.6	0.7
Fires, burns	335	226	109	0.9	1.2	0.6
Homicide	5,354	4,223	1,131	14.0	21.9	6.0
Suicide	4,924	4,109	815	12.9	21.3	4.3
	25 to 44 Years					
All Causes	**131,164**	**91,082**	**40,082**	**169.0**	**236.1**	**102.7**
Accidents	**27,484**	**21,430**	**6,054**	**35.4**	**55.5**	**15.5**
Motor-vehicle	16,405	12,295	4,110	21.1	31.9	10.5
Poison (solid, liquid)	2,649	2,074	575	3.4	5.4	1.5
Drowning	1,516	1,329	187	2.0	3.4	0.5
Falls	1,138	960	178	1.5	2.5	0.5
Fires, burns	899	633	266	1.2	1.6	0.7
Cancer	20,305	9,231	11,074	26.2	23.9	28.4
Heart disease	15,874	11,769	4,105	20.5	30.5	10.5
	45 to 64 Years					
All Causes	**389,244**	**241,259**	**147,985**	**859.3**	**1,112.9**	**626.5**
Cancer	136,664	73,902	62,762	301.7	340.9	265.7
Heart disease	122,725	86,345	36,380	270.9	398.3	154.0
Stroke (cerebrovascular disease)	16,160	8,644	7,516	35.7	39.9	31.8
Accidents	**14,807**	**10,509**	**4,298**	**32.7**	**48.5**	**18.2**
Motor-vehicle	7,021	4,723	2,298	15.5	21.8	9.7
Falls	1,517	1,099	418	3.3	5.1	1.8
Fires, burns	819	534	285	1.8	2.5	1.2
Poison (solid, liquid)	696	431	265	1.5	2.0	1.1
Ingestion of food, object	564	368	196	1.2	1.7	0.8
Chronic obstructive pulmonary disease	12,593	7,222	5,371	27.8	33.3	22.7
Chronic liver disease, cirrhosis	11,696	8,100	3,596	25.8	37.4	15.2
	65 to 74 Years					
All Causes	**486,103**	**283,057**	**203,046**	**2,751.5**	**3,618.3**	**2,082.6**
Heart disease	178,072	108,647	69,425	1,007.9	1,388.8	705.3
Cancer	149,046	84,815	64,231	843.6	1,084.2	652.5
Stroke (cerebrovascular disease)	27,767	13,931	13,836	157.2	178.1	140.6
Chronic obstructive pulmonary disease	25,707	15,666	10,041	145.5	200.3	102.0
Diabetes mellitus	10,789	4,912	5,877	61.1	62.8	59.7
Pneumonia	10,026	6,206	3,820	56.7	79.3	38.8
Accidents	**8,686**	**5,263**	**3,423**	**49.2**	**67.3**	**34.8**
Motor-vehicle	3,277	1,928	1,349	18.5	24.6	13.7
Falls	1,608	954	654	9.1	12.2	6.6
Surgical, medical complications	740	392	348	4.2	5.0	3.5
Ingestion of food, object	610	338	272	3.5	4.3	2.8
Fires, burns	610	344	266	3.5	4.4	2.7
	75 Years and Over					
All Causes	**1,024,165**	**432,691**	**591,474**	**8,420.3**	**10,081.3**	**7,513.6**
Heart disease	441,024	176,892	264,132	3,625.9	4,121.4	3,355.3
Cancer	167,186	84,518	82,668	1,374.5	1,969.2	1,050.2
Stroke (cerebrovascular disease)	102,033	34,454	67,579	838.9	802.7	858.5
Pneumonia	50,523	21,860	28,663	415.4	509.3	364.1
Chronic obstructive pulmonary disease	38,753	23,425	15,328	318.6	545.8	194.7
Atherosclerosis	18,499	6,063	12,436	152.1	141.3	158.0
Diabetes mellitus	17,590	5,996	11,594	144.6	139.7	147.3
Accidents	**17,279**	**8,065**	**9,214**	**142.1**	**187.9**	**117.0**
Falls	7,001	2,798	4,203	57.6	65.2	53.4
Motor-vehicle	3,553	1,992	1,561	29.2	46.4	19.8
Ingestion of food, object	1,807	820	987	14.9	19.1	12.5
Surgical, medical complications	1,313	534	779	10.8	12.4	9.9
Fires, burns	835	413	422	6.9	9.6	5.4

Source: Deaths are for 1987, latest official figures from National Center for Health Statistics, Public Health Service, U.S. Department of Health and Human Services. The all causes and accident totals for each age group include deaths not shown separately.

[a] Deaths per 100,000 population in each age group.

[b] Less than 0.05.

Leading causes of death by age, 1987

Heart disease, cancer, stroke and accidents were the leading causes of death in the United States in 1987. This graph depicts the number of deaths attributed to these causes by single year ages.

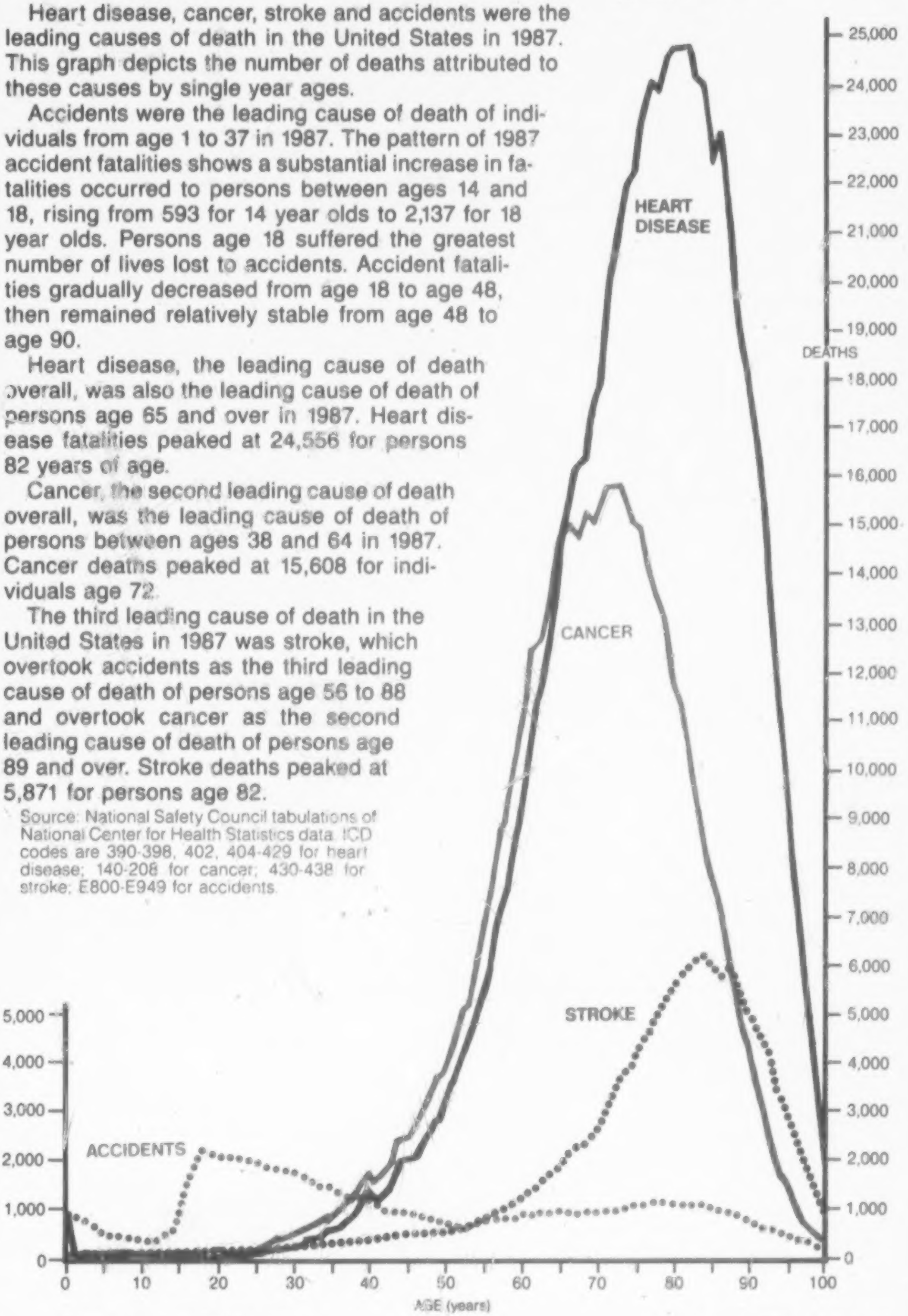
Accidents were the leading cause of death of individuals from age 1 to 37 in 1987. The pattern of 1987 accident fatalities shows a substantial increase in fatalities occurred to persons between ages 14 and 18, rising from 593 for 14 year olds to 2,137 for 18 year olds. Persons age 18 suffered the greatest number of lives lost to accidents. Accident fatalities gradually decreased from age 18 to age 48, then remained relatively stable from age 48 to age 90.

Heart disease, the leading cause of death overall, was also the leading cause of death of persons age 65 and over in 1987. Heart disease fatalities peaked at 24,556 for persons 82 years of age.

Cancer, the second leading cause of death overall, was the leading cause of death of persons between ages 38 and 64 in 1987. Cancer deaths peaked at 15,608 for individuals age 72.

The third leading cause of death in the United States in 1987 was stroke, which overtook accidents as the third leading cause of death of persons age 56 to 88 and overtook cancer as the second leading cause of death of persons age 89 and over. Stroke deaths peaked at 5,871 for persons age 82.

Source: National Safety Council tabulations of National Center for Health Statistics data. ICD codes are 390-398, 402, 404-429 for heart disease; 140-208 for cancer; 430-438 for stroke; E800-E949 for accidents.



Leading causes of accidental death by age

Motor-vehicle accidents, falls, drownings, and fires and burns were the leading causes of accidental death in the United States in 1987. This graph depicts the number of deaths attributed to these causes by single year ages in that year.

Motor-vehicle accidents were the leading cause of accidental death overall and the leading cause of accidental death of persons age 1 to 78 in 1987. The distribution of 1987 motor-vehicle fatalities shows a sharp increase for persons age 12 to 18, rising from 210 for 12 year olds to 1,739 for 18 year olds. The greatest number of motor-vehicle fatalities occurred to persons age 18 in 1987.

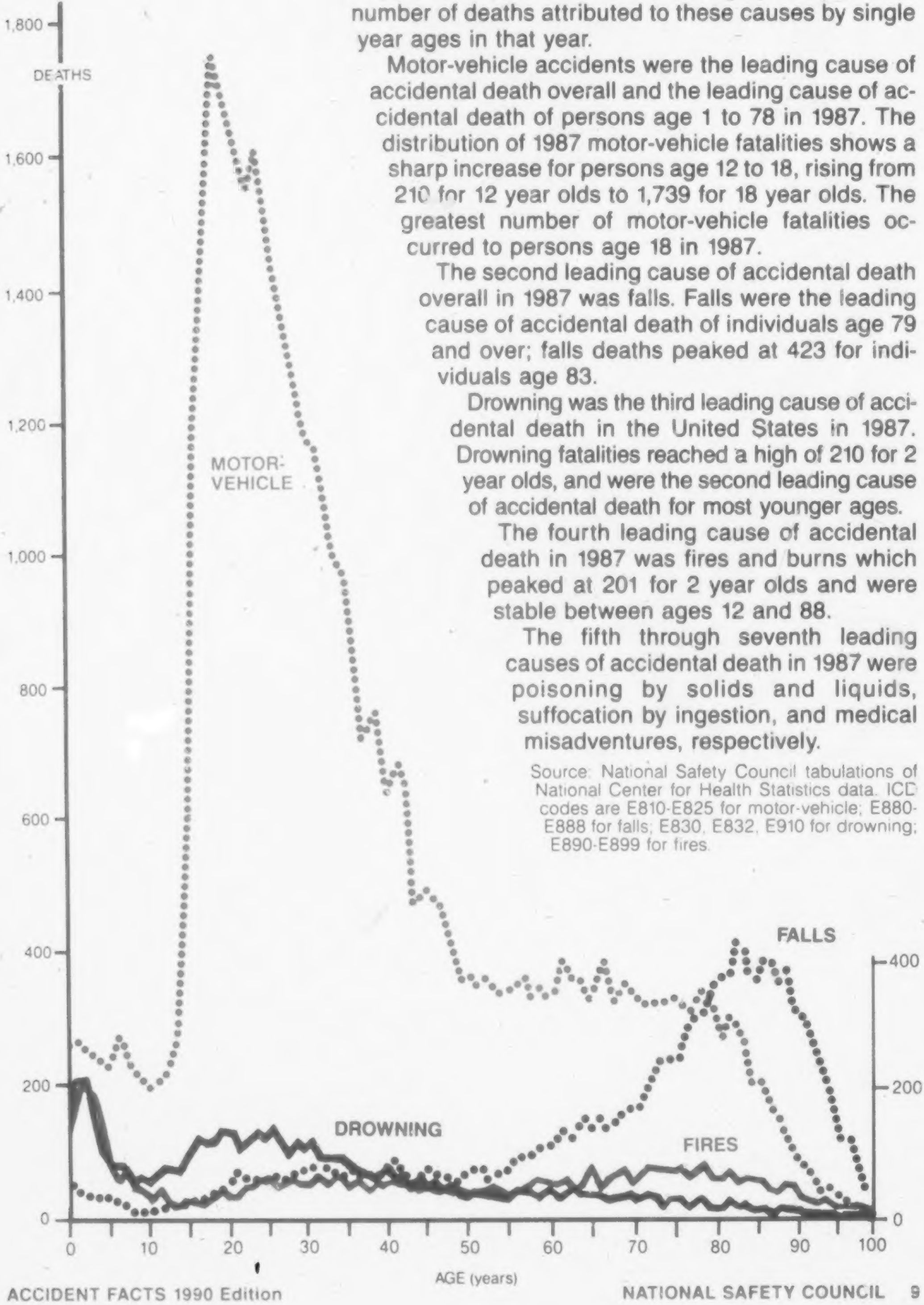
The second leading cause of accidental death overall in 1987 was falls. Falls were the leading cause of accidental death of individuals age 79 and over; falls deaths peaked at 423 for individuals age 83.

Drowning was the third leading cause of accidental death in the United States in 1987. Drowning fatalities reached a high of 210 for 2 year olds, and were the second leading cause of accidental death for most younger ages.

The fourth leading cause of accidental death in 1987 was fires and burns which peaked at 201 for 2 year olds and were stable between ages 12 and 88.

The fifth through seventh leading causes of accidental death in 1987 were poisoning by solids and liquids, suffocation by ingestion, and medical misadventures, respectively.

Source: National Safety Council tabulations of National Center for Health Statistics data. ICD codes are E810-E825 for motor-vehicle; E880-E888 for falls; E830, E832, E910 for drowning; E890-E899 for fires.



8

All Deaths Due to Injury

Type of Accident or Manner of Injury	1987[a]	1986	1985
TOTAL DEATHS DUE TO INJURIES, E800-E999[b]	**149,942**	**151,032**	**145,648**
All Accidental Deaths, E800-E949	**95,020**	**95,277**	**93,457**
Transport accidents, E800-E848	**51,388**	**50,925**	**49,249**
Railway, E800-E807	624	556	551
Motor-vehicle, E810-E825	48,290	47,865	45,901
Other road vehicle, E826-E829	231	234	231
Water transport, E830-E838	949	1,102	1,111
Drowning (excluded from drowning below), E830, E832	*740*	*923*	*909*
Other water transport, E831, E833-E838	*209*	*179*	*202*
Air and space transport, E840-E845	1,263	1,148	1,428
Vehicle accidents not elsewhere classifiable, E846-E848	31	20	27
Poisoning by solids and liquids (See also page 97), E850-E866	**4,415**	**4,731**	**4,091**
Drugs, medicaments and biologicals, E850-E858	3,907	4,187	3,612
Analgesics, antipyretics, and antirheumatics, E850	*937*	*1,279*	*1,209*
Barbiturates, E851	*30*	*49*	*42*
Other sedatives and hypnotics, E852	*29*	*30*	*32*
Tranquilizers, E853	*63*	*92*	*102*
Other psychotropic agents, E854	*165*	*205*	*165*
Other drugs acting on central and autonomic nervous system, E855	*852*	*685*	*448*
Antibiotics, E856	*59*	*63*	*50*
Anti-infectives, E857	*7*	*6*	*4*
Other drugs, E858	*1,765*	*1,778*	*1,560*
Poisoning by other solids and liquids, E860-E866	508	544	479
Alcohol, E860	*347*	*352*	*305*
Cleansing, polishing agents, disinfectants, paints, varnishes, E861	*11*	*6*	*10*
Petroleum products, other solvents and their vapors, E862	*70*	*84*	*75*
Agricultural, horticultural chemical, pharmaceutical preparations, E863	*13*	*20*	*21*
Corrosives and caustics, E864	*10*	*17*	*11*
Foodstuffs and poisonous plants, E865	*9*	*6*	*6*
Other and unspecified solids and liquids, E866	*48*	*59*	*51*
Poisoning by gases and vapors (See also page 97), E867-E869	**900**	**1,009**	**1,079**
Gas distributed by pipeline, E867	53	29	49
Other utility gas and other carbon monoxide, E868	690	816	880
Motor-vehicle exhaust gas, E868.2	*402*	*475*	*488*
Others, not motor-vehicle exhaust gas, E868.0, E868.1, E868.3-E868.9	*288*	*341*	*392*
Other gases and vapors, E869	157	164	150
Complications, misadventures of surgical, medical care, E870-E879	**2,881**	**2,873**	**2,674**
Falls, E880-E888	**11,733**	**11,444**	**12,001**
Fall on or from stairs or steps, E880	1,135	1,137	1,176
Fall on or from ladders or scaffolding, E881	354	325	348
Fall from or out of building or other structure, E882	685	650	661
Fall into hole or other opening in surface, E883	100	119	120
Other fall from one level to another, E884	1,088	1,003	1,060
Fall on same level from slipping, tripping or stumbling, E885	400	389	404
Fall on same level from collision, pushing or shoving, E886	4	5	7
Fracture, cause unspecified, E887	2,780	2,707	2,986
Other and unspecified fall, E888	5,187	5,109	5,239
Fire and flames, E890-E899	**4,710**	**4,835**	**4,938**
Conflagration, E890-E892	4,083	4,175	4,202
Ignition of clothing, E893	200	179	232
Ignition of highly inflammable material, E894	55	56	69
Other and unspecified fire and flames, E895-E899	372	425	435
Natural and environmental factors, E900-E909	**1,527**	**1,501**	**1,904**
Excessive heat, E900	338	364	226
Excessive cold, E901	631	619	1,010
Hunger, thirst, exposure and neglect, E904	169	207	195
Poisoning by and toxic reaction to venomous animals, plants, E905	68	63	55
Venomous snakes, lizards, and spiders, E905.0, E905.1	*11*	*13*	*8*
Hornets, wasps and bees, E905.3	*53*	*42*	*41*
Other and unspecified animals, plants, E905.2, E905.4-E905.9	*4*	*8*	*6*
Other injury caused by animals, E906	97	93	101
Dog bite, E906.0	*12*	*15*	*15*
Other and unspecified injury by animal, E906.1-E906.9	*85*	*78*	*86*
Lightning, E907	99	78	85
Cataclysmic storms, and floods resulting from storms, E908	91	58	198
Cataclysmic earth surface movements and eruptions, E909	25	12	23
Other natural and environmental factors, E902, E903	9	7	11
Other accidents, E910-E928	**16,573**	**17,099**	**16,674**
Drowning, submersion (excluding water transport drownings above), E910	4,360	4,777	4,407
During sport or recreation, E910.0-E910.2	*981*	*1,219*	*1,081*
In bathtub, E910.4	*348*	*343*	*353*
Other, unspecified drowning, submersion, E910.3, E910.8, E910.9	*3,031*	*3,215*	*2,973*
Inhalation and ingestion of food, E911	1,569	1,709	1,663
Inhalation and ingestion of other object, E912	2,119	1,983	1,888

See source and footnotes on page 11.

All Deaths Due to Injury, Cont.

Type of Accident or Manner of Injury	1987[a]	1986	1985
Mechanical suffocation, E913	1,009	941	920
In bed or cradle, E913.0	*198*	*172*	*167*
By plastic bag, E913.1	*41*	*48*	*39*
Due to lack of air (in refrigerator, other enclosed space), E913.2	*21*	*31*	*21*
By falling earth (noncataclysmic cave-in), E913.3	*121*	*114*	*132*
Other and unspecified mechanical suffocation, E913.8, E913.9	*628*	*576*	*561*
Struck by falling object, E916	902	888	903
Struck against or by objects or persons, E917	193	243	255
Caught in or between objects, E918	122	112	105
Machinery, E919	1,253	1,202	1,288
Agricultural machines, E919.0	*643*	*649*	*693*
Lifting machines and appliances, E919.2	*192*	*185*	*218*
Earth moving, scraping and other excavating machines, E919.7	*138*	*116*	*87*
Other, unspecified machinery, E919.1, E919.3-E919.6, E919.8, E919.9	*280*	*252*	*290*
Cutting or piercing instruments or objects, E920	87	118	132
Firearm missile, E922	1,440	1,452	1,649
Handgun, E922.0	*206*	*183*	*190*
Shotgun (automatic), E922.1	*178*	*190*	*215*
Hunting rifle, E922.2	*105*	*108*	*113*
Other and unspecified firearm missile, E922.3-E922.9	*951*	*971*	*1,131*
Explosive material, E923	216	242	296
Fireworks, E923.0	*5*	*8*	*11*
Explosive gases, E923.2	*108*	*116*	*138*
Other and unspecified explosive material, E923.1, E923.8, E923.9	*103*	*118*	*147*
Hot substance or object, corrosive material and steam, E924	137	134	176
Electric current, E925	760	854	802
Domestic wiring and appliances, E925.0	*121*	*150*	*146*
Generating plants, distribution stations, transmission lines, E925.1	*177*	*182*	*196*
Industrial wiring, appliances and electrical machinery, E925.2	*64*	*89*	*69*
Other and unspecified electric current, E925.8, E925.9	*398*	*433*	*391*
Radiation, E926	0	0	0
Other and unspecified, E914, E915, E921, E927, E928	2,406	2,444	2,190
Late effects (deaths more than one year after accident), E929	**742**	**664**	**669**
Adverse effects of drugs in therapeutic use, E930-E949	**151**	**196**	**178**
All Suicide Deaths E950-E959	**30,796**	**30,904**	**29,453**
Poisoning by solid and liquid, E950	3,106	3,070	2,937
Poisoning by gases and vapors, E951, E952	3,215	2,966	2,767
Motor-vehicle exhaust gas, E952.0	*2,684*	*2,450*	*2,308*
Other and unspecified gases and vapors, E951, E952.1-E952.9	*531*	*516*	*459*
Hanging, strangulation and suffocation, E953	4,235	4,606	4,264
Drowning, E954	454	493	466
Firearms, E955.0-E955.4	18,136	18,153	17,363
Handgun, E955.0	*3,295*	*3,319*	*2,981*
Shotgun, E955.1	*2,461*	*2,365*	*2,301*
Hunting rifle, E955.2	*1,114*	*1,146*	*1,138*
Other and unspecified firearm, E955.3, E955.4	*11,266*	*11,323*	*10,943*
Cutting and piercing instruments, E956	433	432	434
Jumping from high places, E957	642	680	721
Other, unspecified suicide and late effects, E955.5, E955.9, E958, E959	575	504	501
All Homicide Deaths, E960-E969	**20,812**	**21,462**	**19,628**
Assault by hanging and strangulation, E963	1,015	1,006	934
Assault by firearm, E965.0-E965.4	12,657	13,029	11,836
Handgun, E965.0	*1,041*	*1,088*	*903*
Shotgun, E965.1	*1,079*	*1,230*	*1,082*
Hunting rifle, E965.2	*202*	*198*	*207*
Other and unspecified firearm, E965.3, E965.4	*10,335*	*10,513*	*9,644*
Assault by cutting and piercing instrument, E966	4,099	4,342	3,994
Child battering and other maltreatment, E967	202	215	154
Other, unspecified assault and late effects, E960-E962, E964, E965.5-E965.9, E968, E969	2,839	2,870	2,710
Legal Intervention, E970-E978	**291**	**269**	**265**
Undetermined Whether Accidentally or Purposely Inflicted, E980-E989	**3,011**	**3,108**	**2,826**
Poisoning by solid and liquid, E980	1,146	1,033	832
Poisoning by gases and vapors, E981, E982	169	190	152
Motor-vehicle exhaust gas, E982.0	*102*	*122*	*93*
Other and unspecified gases and vapors, E981, E982.1-E982.9	*67*	*68*	*59*
Drowning, E984	346	323	365
Firearms, E985.0-E985.4	405	492	476
Other, unspecified undetermined deaths and late effects, E983, E985.5-E989	945	1,070	1,001
Deaths From Operations of War, E990-E999	**12**	**12**	**19**

Source: National Center for Health Statistics. Deaths are classified on the basis of the Ninth Revision of "The International Classification of Diseases" (ICD), which became effective in 1979.

[a] Latest official figures.

[b] Numbers following titles refer to External Cause of Injury and Poisoning classifications in the ICD.

Accidental Deaths by Age, Sex, and Type, 1987[a]

Age and Sex	ALL TYPES[b]	Motor-Vehicle	Falls	Drowning[c]	Fires, Burns[d]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas	% Male All Types
All Ages	**95,020**	**48,290**	**11,733**	**5,100**	**4,710**	**3,688**	**1,440**	**4,415**	**900**	**68%**
Under 5	3,871	1,190	100	770	820	277	37	31	22	60%
5 to 14	4,198	2,397	57	593	392	40	210	21	26	69%
15 to 24	18,695	14,447	312	1,097	335	78	433	432	181	77%
25 to 44	27,484	16,405	1,138	1,516	899	312	463	2,649	308	78%
45 to 64	14,807	7,021	1,517	625	819	564	201	696	181	71%
65 to 74	8,686	3,277	1,608	249	610	610	50	241	70	61%
75 & over	17,279	3,553	7,001	250	835	1,807	46	345	112	47%
Male	**64,816**	**33,904**	**6,203**	**4,207**	**2,863**	**1,977**	**1,249**	**3,119**	**663**	
Female	**30,204**	**14,386**	**5,530**	**893**	**1,847**	**1,711**	**191**	**1,296**	**237**	
Per cent male	68%	70%	53%	82%	61%	54%	87%	71%	74%	

Accidental Deaths by Month and Type, 1987 and 1989

Month	1989 Totals	1987[a] Details by Type								
		ALL TYPES[b]	Motor-Vehicle	Falls	Drowning[c, e]	Fires, Burns[d]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas
All Months	**94,500**	**95,020**	**48,290**	**11,733**	**5,100**	**4,710**	**3,688**	**1,440**	**4,415**	**900**
January	7,600	7,248	3,301	1,048	170	633	333	115	321	135
February	6,450	6,432	2,997	871	180	525	317	99	326	108
March	7,600	7,359	3,517	982	290	481	345	104	367	96
April	7,500	7,327	3,621	973	380	395	297	81	333	61
May	7,600	8,160	4,264	979	620	314	284	94	375	34
June	7,850	8,494	4,279	943	850	233	321	97	410	40
July	8,700	8,869	4,472	941	970	239	301	123	379	53
August	8,550	9,210	4,815	991	720	233	284	119	438	55
September	8,000	7,780	4,300	992	360	220	261	105	343	47
October	8,350	8,336	4,535	1,011	240	441	310	146	388	63
November	7,650	7,886	4,169	968	160	434	322	197	349	90
December	8,650	7,919	4,020	1,034	160	562	313	160	386	118
Average	**7,875**	**7,918**	**4,024**	**978**	**425**	**393**	**307**	**120**	**368**	**75**

Source: National Center for Health Statistics and National Safety Council.

[a] Latest official figures.

[b] Includes some deaths not shown separately.

[c] Includes drowning in water transport accidents.

[d] Includes deaths resulting from conflagration regardless of nature of injury.

[e] Partly estimated.

Injury definitions

National Health Interview Survey definitions. The National Health Interview Survey (NHIS) figures on the next page and noted elsewhere in *Accident Facts* include injuries due to nonaccidental violence as well as accidental injuries. An injury is included in the NHIS totals if (1) it is *medically attended* or (2) it causes one-half day or more of *restricted activity*. A *medically attended* injury is one for which a physician has been consulted (in person or by telephone) for examination, diagnosis, treatment or advice. *Restricted activity* is defined as one or more of the following types: bed day (person stayed in bed more than half a day); work-loss day (person missed more than half a day from a job or business); school-loss day (currently enrolled 5-17 year old student missed more than half a day of school); cut down day (person cuts down for more than half a day on the things he or she usually does).

National Safety Council definition of injury. A disabling injury is defined as one which results in death, some degree of permanent impairment, or renders the injured person unable to effectively perform his regular duties or activities for a full day beyond the day of the injury. This definition applies to all categories of accidents. All injury totals labeled "disabling injuries" in *Accident Facts* are based on this definition. Some *rates* in the Work section are based on OSHA definitions of recordable cases (see page 45).

Numerical differences between National Health Interview Survey totals above and the National Safety Council totals on page 1 are due mainly to differences in the injury definitions used.

The National Health Interview Survey

The National Health Interview Survey, conducted by the U.S. Public Health Service, is a continuous sample of households to record health data including the injuries which members of the households experienced during the two weeks prior to the interview. Of the nation's 91,100,000 households in 1988, approximately 47,000 were interviewed. The questionnaire and data preparation procedures of the survey were extensively revised in 1982, and comparison with earlier results should be made with caution.

See page 12 for definitions.

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Estimated Number of Episodes of Persons Injured, Restricted Activity Days and Bed Days, 1988

Class or Place	Persons Injured		Restricted Activity Days		Bed Days	
	Number	Rate[a]	Number	Rate[a]	Number	Rate[a]
All episodes:[b]	**57,703,000**	**24.0**	**606,264,000**	**251.7**	**174,862,000**	**72.6**
Moving motor vehicle:	**4,212,000**	**1.7**	**119,985,000**	**49.8**	**39,783,000**	**16.5**
Traffic	*3,531,000*	*1.5*	*107,110,000*	*44.5*	*33,691,000*	*14.0*
Work:[c]	**10,057,000**	**5.7**	**178,845,000**	**100.9**	**47,625,000**	**26.9**
Place of accident:						
Home[c]	20,435,000	8.5	153,734,000	63.8	39,636,000	16.5
Street, highway	5,955,000	2.5	141,415,000	58.7	45,690,000	19.0
Industrial place[c]	7,128,000	3.0	134,288,000	55.7	37,278,000	15.5
Other	15,333,000	6.4	129,117,000	53.6	29,756,000	12.4

Source: National Center for Health Statistics, P. F. Adams and A. M. Hardy: Current estimates from the National Health Interview Survey, United States, 1988. *Vital and Health Statistics,* Series 10, No. 173. DHHS Pub. No. (PHS) 89-1501. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1989.

[a] Per 100 persons per year.

[b] Estimates are calculated for three separate characteristics: whether in a moving motor vehicle, whether at work, and by place of accident. The "all episodes" estimate includes cases unclassified for one or more of these characteristics. For this reason, and because there is duplication among categories, individual estimates do not add to the "all episodes" total.

[c] Work includes employed persons 18 years of age and over only. Home includes yard, buildings, and sidewalks on the property as well as inside the house. Industrial place does *not* include business or professional offices, farms or other nonindustrial work locations.

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Number of Episodes of Persons Injured by Age, 1988

Class or Place	Average annual number of persons injured (in thousands)						
	ALL AGES	Under 5 Years	5-17 Years	18-24 Years	25-44 Years	45-64 Years	65 Years and Over
All episodes:[a]	**57,703**	**4,934**	**13,257**	**8,304**	**18,646**	**6,859**	**5,703**
Moving motor vehicle:	**4,212**	**86**	**615**	**1,186**	**1,588**	**437**	**300**
Traffic	*3,531*	*86*	*444*	*893*	*1,372*	*437*	*300*
Work:[c]	**10,057**	([b])	([b])	**2,331**	**5,937**	**1,364**	**425**
Place of accident:							
Home[c]	20,435	2,977	4,083	1,989	5,639	2,927	2,820
Street, highway	5,955	86	1,001	1,226	1,929	867	845
Industrial place[c]	7,128	45	588	1,601	3,882	782	229
Other	15,333	488	6,120	2,635	4,497	753	840

Source: National Center for Health Statistics, P. F. Adams and A. M. Hardy: Current estimates from the National Health Interview Survey, United States, 1988. *Vital and Health Statistics,* Series 10, No. 173. DHHS Pub. No. (PHS) 89-1501. Public Health Service. Washington. U.S. Government Printing Office, Sept. 1989.

[a] Estimates are calculated for three separate characteristics: whether in a moving motor vehicle, whether at work, and by place of accident. The "all episodes" estimate includes cases unclassified for one or more of these characteristics. For this reason, and because there is duplication among categories, individual estimates do not add to the "all episodes" total.

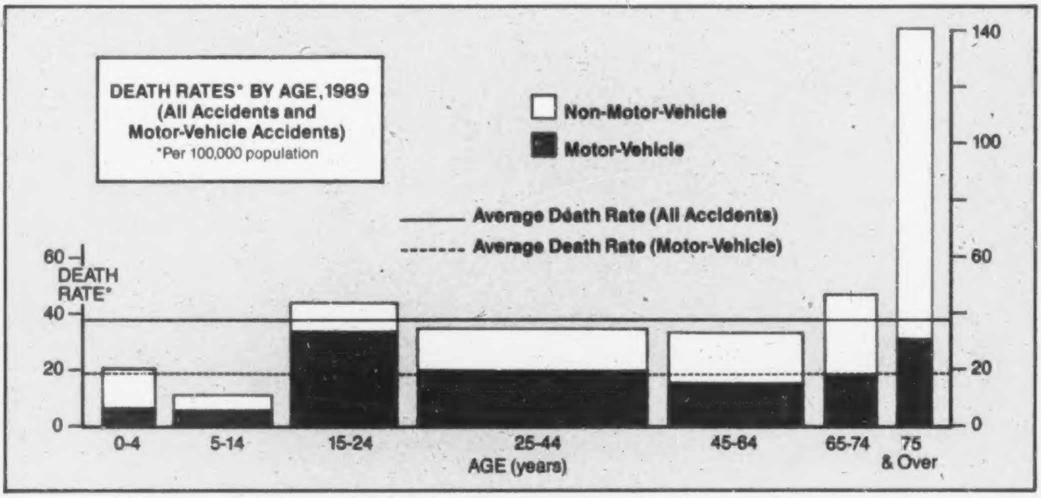
[b] Not available or not applicable.

[c] Work includes employed persons 18 years of age and over only. Home includes yard, buildings, and sidewalks on the property as well as inside the house. Industrial place does *not* include business or professional offices, farms or other nonindustrial work locations.

Accidental death rates by age

Accidental death rates per 100,000 population are published each year in *Accident Facts* for the entire population and for standard age groups. The amount that the rate for a particular age group contributes to the overall rate is determined by the magnitude of the group rate and the proportion of the population represented by the group. For example, although the death rate for those aged 75 and over is almost 3 times higher than any other age group, this group also represents the smallest proportion of the population.

The chart below illustrates for each age group, the two factors which determine its contribution to the overall rate. Height of the bars represents the magnitude of the death rate for the age group. Width of the bar represents its relative proportion of the total population. The motor-vehicle portion of the rate is shown in solid color.



Years of Potential Life Lost (YPLL)

While accidents are the fourth leading cause of death in the U.S., accident victims tend to be much younger than those for the three leading causes of death. Ranked by years of potential life lost before age 65, unintentional injuries (accidents) are the leading cause of death, accounting for about 2.3 million such years lost in each 12-month period. The next leading causes of years of potential life lost before age 65, in order, are cancer (1.8 million), heart disease (1.5 million), and suicide/homicide (1.4 million).

Including only the years before age 65 is the standard method used to calculate years of potential life lost. However, alternative methods include years before age 85 or total life expectancy remaining at time of death. Using both these alternative methods, the leading causes of years of potential life lost are, in order, heart disease, cancer, unintentional injuries, suicide/homicide, and cerebrovascular disease.

By type of accidental death, rankings based on years of potential life lost likewise tend to emphasize those types dominated by younger age groups. Motor-vehicle accidents are the leading cause of accidental death and also the leading cause of years of potential life lost before age 65 due to accidents. Falls, however, are the second leading cause of accidental death but fifth leading cause of years of potential life lost due to accidents. Other accident types and their rankings in terms of years of potential life lost before age 65 due to accidents are as follows: drownings (second), fires (third), poisonings (fourth), firearms (sixth), suffocation by ingestion (seventh).

Source: *Morbidity and Mortality Weekly Report* (35 [suppl. no. 1S], December 19, 1986, 3S; *36* [49], December 18, 1987, 814; *39* [2], January 19, 1990, 20).

Major Disasters, 1989

Disasters are front-page news even though the lives lost in the United States are relatively few when compared to the day-to-day life losses from ordinary accidents. Below are major disasters taking 25 or more lives in the U.S. during 1989.

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Type and Location	No. of Deaths	Date of Disaster
Crash of scheduled plane in Sioux City, Iowa	112	July 19, 1989
Hurricane (Hugo) in South Carolina and North Carolina	26	Sept. 21-22, 1989
Earthquake in San Francisco, Cal., and surrounding area	61	Oct. 17, 1989
Storm and tornadoes in southern states and east coast	30	Nov. 15-16, 1989

Source: National Transportation Safety Board, National Weather Service, California Dept. of Health Services.

count as 1

Largest U.S. Disasters by Category

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	Type and Location	No. of Deaths	Date of Disaster
Floods:	Galveston tidal wave	6,000	Sept. 8, 1900
	Johnstown, Pa.	2,209	May 31, 1889
	Ohio and Indiana	732	Mar. 28, 1913
	St. Francis, Calif., dam burst	450	Mar. 13, 1928
	Ohio and Mississippi River valleys	380	Jan. 22, 1937
Hurricanes:	Florida	1,833	Sept. 16-17, 1928
	New England	657	Sept. 21, 1938
	Louisiana	500	Sept. 29, 1915
	Florida	409	Sept. 1-2, 1935
	Louisiana and Texas	395	June 27-28, 1957
Tornadoes:	Illinois	606	Mar. 18, 1925
	Mississippi, Alabama, Georgia	402	Apr. 2-7, 1936
	Southern and Midwestern states	307	Apr. 3, 1974
	Ind., Ohio, Mich., Ill. and Wis.	272	Apr. 11, 1965
	Ark., Tenn., Mo., Miss. and Ala.	229	Mar. 21-22, 1952
Earthquakes:	San Francisco earthquake and fire	452	Apr. 18, 1906
	Alaskan earthquake-tsunami hit Hawaii, Calif.	173	Apr. 1, 1946
	Long Beach, Calif., earthquake	120	Mar. 10, 1933
	Alaskan earthquake and tsunami	117	Mar. 27, 1964
	San Fernando-Los Angeles, Calif., earthquake	64	Feb. 9, 1971
Marine:	"Sultana" exploded—Mississippi River	1,547	Apr. 27, 1865
	"General Slocum" burned—East River	1,030	June 15, 1904
	"Empress of Ireland" ship collision—St. Lawrence River	1,024	May 29, 1914
	"Eastland" capsized—Chicago River	812	July 24, 1915
	"Morro-Castle" burned—off New Jersey coast	135	Sept. 8, 1934
Aircraft:	Crash of scheduled plane near O'Hare Airport, Chicago	273	May 25, 1979
	Crash of scheduled plane, Detroit, Michigan	156	Aug. 16, 1987
	Crash of scheduled plane in Kenner, La.	154	July 9, 1982
	Two-plane collision over San Diego, Calif.	144	Sept. 25, 1978
	Crash of scheduled plane, Ft. Worth/Dallas Airport	135	Aug. 2, 1985
Railroad:	Two-train collision near Nashville, Tenn.	101	July 9, 1918
	Two-train collision, Eden, Colo.	96	Aug. 7, 1904
	Avalanche hit two trains near Wellington, Wash.	96	Mar. 1, 1910
	Bridge collapse under train, Ashtabula, Ohio	92	Dec. 29, 1876
	Rapid transit train derailment, Brooklyn, N.Y.	92	Nov. 1, 1918
Fires:	Peshtigo, Wis., and surrounding area forest fire	1,152	Oct. 9, 1871
	Iroquois Theatre, Chicago	603	Dec. 30, 1903
	Northeastern Minnesota, forest fire	559	Oct. 12, 1918
	Cocoanut Grove nightclub, Boston	492	Nov. 28, 1942
	North German Lloyd Steamships, Hoboken, N.J.	326	June 30, 1900
Explosions:	Texas City, Texas, ship explosion	552	Apr. 16, 1947
	Port Chicago, Calif., ship explosion	322	July 18, 1944
	New London, Texas, school explosion	294	Mar. 18, 1937
	Oakdale, Pa., munitions plant explosion	158	May 18, 1918
	Eddystone, Pa., munitions plant explosion	133	Apr. 10, 1917
Mines:	Monongha, West Va., coal mine explosion	361	Dec. 6, 1907
	Dawson, New Mexico, coal mine fire	263	Oct. 22, 1913
	Cherry, Ill., coal mine fire	259	Nov. 13, 1909
	Jacobs Creek, Pa., coal mine explosion	239	Dec. 19, 1907
	Scofield, Utah, coal mine explosion	200	May 1, 1900

Source: World Almanac, National Transportation Safety Board, National Weather Service, National Fire Protection Association, Chicago Historical Society, American Red Cross, U.S. Bureau of Mines, National Oceanic and Atmospheric Administration, and city and state Boards of Health.

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Principal Classes of Accidental Deaths by State, 1989

State	TOTAL[a]		Motor-Vehicle[b]		Work[c]		Home		Public Non-Motor-Vehicle		Unclassified[d]	
	Deaths	Rate[e]	Deaths	Rate[e]	Deaths	Rate[e]	Deaths	Rate[e]	Deaths	Rate[e]	Deaths	Rate[e]
Total U.S.	**94,500**	**38.1**	**46,900**	**18.9**	**10,400**	**4.2**	**22,500**	**9.1**	**19,000**	**7.7**	...	...
Alabama	1,943	47.2	1,048	25.4	77	1.9	335	8.1	238	5.8	245	5.9
Alaska	...	...	...	...	...	...	...	...	...	...	...	...
Arizona	1,664	46.8	919	25.8	32	0.9	329	9.3	314	8.8	70	2.0
Arkansas	...	...	...	...	...	...	...	...	...	...	...	...
California	...	...	...	...	...	...	...	...	...	...	...	...
Colorado	...	...	...	...	...	...	...	...	...	...	...	...
Connecticut	...	...	...	...	...	...	...	...	...	...	...	...
Delaware	218	32.4	127	18.9	10	1.5	56	8.3	20	3.0	5	0.7
Dist. of Columbia	193	32.0	88	14.6	5	0.8	48	7.9	25	4.1	27	4.5
Florida	5,432	42.9	3,115	24.6	325	2.6	1,007	7.9	180	1.4	805	6.4
Georgia (8 mos.)	1,952	45.5	1,134	26.4	...	...	269	6.3	241	5.6	308	7.2
Hawaii	321	28.9	148	13.3	11	1.0	43	3.9	89	8.0	30	2.7
Idaho	480	47.3	253	25.0	19	1.9	80	7.9	107	10.6	21	2.1
Illinois (4 mos.)	1,128	29.0	492	12.7	30	0.8	310	8.0	160	4.1	136	3.5
Indiana	...	...	...	...	...	...	...	...	...	...	...	...
Iowa	...	...	...	...	...	...	...	...	...	...	...	...
Kansas	905	36.0	446	17.7	39	1.6	201	8.0	152	6.0	67	2.7
Kentucky	1,632	43.8	758	20.3	95	2.5	275	7.4	218	5.8	286	7.7
Louisiana	...	...	...	...	...	...	...	...	...	...	...	...
Maine	395	32.3	186	15.2	17	1.4	56	4.6	135	11.0	1	0.1
Maryland	1,986	42.3	771	16.4	42	0.9	304	6.5	236	5.0	633	13.5
Massachusetts	...	...	...	...	...	...	...	...	...	...	...	...
Michigan	...	...	...	...	...	...	...	...	...	...	...	...
Minnesota	...	...	...	...	...	...	...	...	...	...	...	...
Mississippi	...	...	...	...	...	...	...	...	...	...	...	...
Missouri	2,139	41.5	1,092	21.2	89	1.7	447	8.7	489	9.5	22	0.4
Montana	386	47.9	201	24.9	18	2.2	67	8.3	83	10.3	17	2.1
Nebraska	636	39.5	306	19.0	20	1.2	121	7.5	184	11.4	5	0.3
Nevada	...	...	...	...	...	...	...	...	...	...	...	...
New Hampshire	331	29.9	205	18.5	7	0.6	73	6.6	43	3.9	3	0.3
New Jersey	...	...	...	...	...	...	...	...	...	...	...	...
New Mexico	980	64.1	560	36.6	16	1.0	195	12.8	202	13.2	7	0.5
New York	4,993	27.8	2,223	12.4	94	0.5	1,324	7.4	1,346	7.5	6	(f)
North Carolina	3,061	46.6	1,536	23.4	96	1.5	334	5.1	81	1.2	1,014	15.4
North Dakota	234	35.5	109	16.5	23	3.5	51	7.7	45	6.8	6	0.9
Ohio (11 mos.)	2,697	27.0	1,571	15.7	104	1.0	766	7.7	249	2.5	7	0.1
Oklahoma	1,179	36.6	576	17.9	43	1.3	376	11.7	178	5.5	6	0.2
Oregon	1,280	45.4	681	24.1	61	2.2	190	6.7	269	9.5	79	2.8
Pennsylvania	...	...	...	...	...	...	...	...	...	...	...	...
Rhode Island	...	...	...	...	...	...	...	...	...	...	...	...
South Carolina	1,902	54.2	998	28.4	...	...	...	...	...	...	904	25.7
South Dakota	...	...	...	...	...	...	...	...	...	...	...	...
Tennessee	2,450	49.6	1,207	24.4	84	1.7	393	8.0	389	7.9	377	7.6
Texas	6,907	40.7	3,560	21.0	274	1.6	1,151	6.8	1,882	11.1	40	0.2
Utah	588	34.4	338	19.8	12	0.7	108	6.3	111	6.5	19	1.1
Vermont	174	30.7	...	...	...	...	...	...	...	...	...	...
Virginia	2,176	35.7	1,003	16.4	83	1.4	411	6.7	657	10.8	22	0.4
Washington (11 mos.)	1,452	33.3	713	16.3	57	1.3	244	5.6	209	4.8	229	5.2
West Virginia	892	48.0	455	24.5	46	2.5	177	9.5	12	0.6	202	10.9
Wisconsin	...	...	...	...	...	...	...	...	...	...	...	...
Wyoming	215	45.3	132	27.8	16	3.4	28	5.9	30	6.3	9	1.9
Puerto Rico[g]	715	21.7	345	10.5	23	0.7	19	0.6	217	6.6	111	3.4
Virgin Islands[g]	32	31.1	11	10.7	1	1.0	4	3.9	12	11.7	4	3.9

Source: Provisional reports of vital statistics registrars; deaths are by place of occurrence. U.S. totals are National Safety Council estimates.

[a] The all-class total may not equal the sum of the separate class totals because motor-vehicle and other transportation deaths occurring to persons in the course of their employment are included in the work death totals as well as the motor-vehicle and public nonmotor-vehicle totals.

[b] Differences between the figures given above and those on pages 68 and 69 are due in most cases to the inclusion of nontraffic deaths in this table.

[c] Work death totals may be too low where incomplete information on death certificates results in the deaths being included in public or unclassified. The work totals may include some cases which are not compensable. For compensable cases only, see page 43.

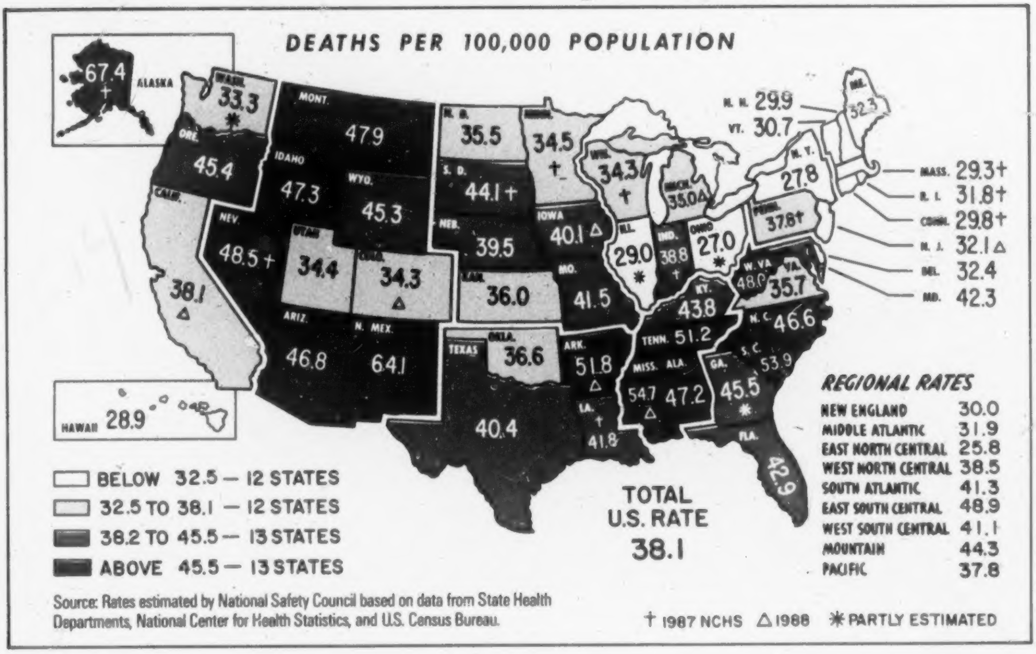
[d] Includes late effects (deaths occurring more than one year after the accident).

[e] Deaths per 100,000 population, adjusted to annual basis where less than 12 months were reported.

[f] Rate was less than 0.05.

[g] Not included in Total U.S.

Accidental death rates by state, 1989


DEATHS PER 100,000 POPULATION
ALASKA 67.4 †
WASH. 33.3 ✱
MONT. 47.9
N. D. 35.5
MINN. 34.5 †
ORE. 45.4
IDAHO 47.3
WYO. 45.3
S. D. 44.1 †
WIS. 34.3 †
MICH. 35.0 △
N. Y. 27.8
CALIF. 38.1 △
NEV. 48.5 †
UTAH 34.4
COLO. 34.3 △
NEB. 39.5
IOWA 40.1 △
ILL. 29.0 ✱
IND. 38.8 †
OHIO 27.0 ✱
PENN. 37.8 †
KAN. 36.0
MO. 41.5
W. VA. 48.0
VA. 35.7
KY. 43.8
N. C. 46.6
ARIZ. 46.8
N. MEX. 64.1
OKLA. 36.6
ARK. 51.8 △
TENN. 51.2
S. C. 53.9
TEXAS 40.4
MISS. 54.7 △
ALA. 47.2
GA. 45.5 ✱
LA. 41.8 †
FLA. 42.9
HAWAII 28.9
N. H. 29.9
VT. 30.7
ME. 32.3
MASS. 29.3 †
R. I. 31.8 †
CONN. 29.8 †
N. J. 32.1 △
DEL. 32.4
MD. 42.3
☐ BELOW 32.5 — 12 STATES
▨ 32.5 TO 38.1 — 12 STATES
▩ 38.2 TO 45.5 — 13 STATES
■ ABOVE 45.5 — 13 STATES
TOTAL U.S. RATE 38.1
† 1987 NCHS △ 1988 ✱ PARTLY ESTIMATED

REGIONAL RATES

NEW ENGLAND	30.0
MIDDLE ATLANTIC	31.9
EAST NORTH CENTRAL	25.8
WEST NORTH CENTRAL	38.5
SOUTH ATLANTIC	41.3
EAST SOUTH CENTRAL	48.9
WEST SOUTH CENTRAL	41.1
MOUNTAIN	44.3
PACIFIC	37.8

Source: Rates estimated by National Safety Council based on data from State Health Departments, National Center for Health Statistics, and U.S. Census Bureau.

Accidental Deaths by State, 1986-1987

State	Deaths[a]		Death Rates[c]	
	1987[b]	1986	1987	1986
U.S.	**95,020**	**95,277**	**39.0**	**39.5**
Alabama	2,168	2,183	53.1	53.9
Alaska	353	388	67.4	73.1
Arizona	1,703	1,812	50.1	55.2
Arkansas	1,274	1,251	53.4	52.8
California	10,548	10,909	38.1	40.4
Colorado	1,303	1,312	39.6	40.2
Connecticut	957	982	29.8	30.7
Delaware	269	253	41.5	39.7
Dist. of Columbia	295	269	47.5	43.0
Florida	5,353	5,225	44.5	44.7
Georgia	3,050	2,919	49.0	47.8
Hawaii	337	299	31.1	28.1
Idaho	442	519	44.2	51.7
Illinois	3,589	3,770	31.0	32.6
Indiana	2,145	2,039	38.8	37.1
Iowa	1,035	1,019	36.7	35.9
Kansas	998	1,013	40.3	41.2
Kentucky	1,698	1,659	45.6	44.6
Louisiana	1,858	2,028	41.8	45.1
Maine	437	418	36.8	35.7
Maryland	1,613	1,487	35.6	33.3
Massachusetts	1,715	1,800	29.3	30.8
Michigan	3,187	3,113	34.6	34.0
Minnesota	1,465	1,439	34.5	34.2
Mississippi	1,461	1,452	55.7	55.3
Missouri	2,211	2,410	43.3	47.6
Montana	445	431	55.0	52.8
Nebraska	660	662	41.4	41.4
Nevada	488	477	48.5	49.4
New Hampshire	338	343	32.0	33.4
New Jersey	2,311	2,224	30.1	29.2
New Mexico	890	866	59.5	58.6
New York	5,707	5,399	32.0	30.3
North Carolina	3,213	3,208	50.1	50.7
North Dakota	238	257	35.5	37.9
Ohio	3,558	3,378	32.9	31.3
Oklahoma	1,287	1,426	39.5	43.2
Oregon	1,248	1,244	45.8	46.0
Pennsylvania	4,516	4,198	37.8	35.3
Rhode Island	314	322	31.8	33.0
South Carolina	1,897	1,875	55.4	55.5
South Dakota	313	313	44.1	44.2
Tennessee	2,526	2,627	52.0	54.7
Texas	6,471	7,077	38.6	42.4
Utah	606	671	36.1	40.3
Vermont	248	230	45.3	42.6
Virginia	2,284	2,286	38.6	39.4
Washington	1,723	1,610	37.9	36.1
West Virginia	923	885	48.6	46.2
Wisconsin	1,651	1,563	34.3	32.7
Wyoming	230	283	46.9	55.8

Source: National Center for Health Statistics. See page 21 for comparability.

[a] Deaths for each state are by place of occurrence. These deaths include nonresident aliens which are excluded from the U.S. totals (1987 - 529 deaths, 1986 - 546).

[b] Latest official figures.

[c] Rates are deaths per 100,000 population.

Accidental Deaths by State and Type of Accident, 1987

State	Population (000)	Type of Accident[a]								
		Total Deaths[b]	Motor-Vehicle[c]	Falls	Drowning[d]	Fires	Poisoning by Solid, Liquid		Poisoning by Gas	Ingestion of Food, Object
							Drugs	Nondrug		
Total U.S.	**243,427**	**95,020**	**48,290**	**11,733**	**5,100**	**4,710**	**3,907**	**508**	**900**	**3,688**
Alabama	4,084	2,166	1,194	164	97	172	37	14	16	65
Alaska	525	346	85	15	75	16	5	1	5	9
Arizona	3,397	1,665	980	153	112	43	66	10	9	32
Arkansas	2,388	1,273	668	112	74	80	24	2	19	65
California	27,655	10,443	5,685	1,021	564	288	1,086	66	54	264
Colorado	3,294	1,295	628	206	60	21	52	13	21	39
Connecticut	3,212	951	444	138	39	37	15	3	24	52
Delaware	648	269	152	32	11	20	14	0	3	7
Dist. of Col.	622	295	115	67	14	11	12	0	0	17
Florida	12,023	5,285	2,919	557	457	179	205	20	44	187
Georgia	6,228	3,040	1,688	342	133	196	103	33	15	84
Hawaii	1,082	328	139	42	41	8	16	2	0	12
Idaho	1,000	438	270	38	20	7	9	1	5	5
Illinois	11,585	3,588	1,695	485	142	208	237	10	42	154
Indiana	5,531	2,143	1,131	269	83	107	49	3	32	75
Iowa	2,822	1,035	503	188	32	40	23	0	21	44
Kansas	2,475	997	511	142	35	56	27	3	9	51
Kentucky	3,723	1,697	863	179	72	81	70	6	13	82
Louisiana	4,448	1,848	865	147	179	127	47	5	9	88
Maine	1,186	427	232	44	21	32	2	2	4	25
Maryland	4,537	1,609	830	230	81	98	19	3	5	65
Massachusetts	5,856	1,710	720	346	79	78	48	6	17	131
Michigan	9,206	3,177	1,654	343	165	167	83	12	45	143
Minnesota	4,245	1,460	570	330	63	36	39	12	17	71
Mississippi	2,624	1,461	802	99	83	131	28	4	24	48
Missouri	5,107	2,209	1,117	310	117	113	61	7	24	111
Montana	809	436	235	57	20	15	5	1	10	2
Nebraska	1,594	660	310	117	24	21	14	1	18	27
Nevada	1,006	479	312	40	23	6	18	3	1	10
New Hampshire	1,057	336	177	57	15	23	5	0	1	12
New Jersey	7,675	2,304	1,036	346	87	147	147	7	24	93
New Mexico	1,496	887	588	71	39	26	9	1	4	20
New York	17,838	5,672	2,403	1,148	218	365	158	11	45	199
North Carolina	6,410	3,210	1,665	309	155	188	78	77	14	160
North Dakota	672	237	113	31	16	12	1	1	3	6
Ohio	10,817	3,554	1,754	505	145	194	147	10	60	147
Oklahoma	3,269	1,287	622	152	78	78	23	3	19	62
Oregon	2,723	1,243	659	171	95	42	39	4	9	36
Pennsylvania	11,943	4,507	2,074	628	129	243	286	22	42	241
Rhode Island	986	314	142	58	16	18	17	1	2	15
South Carolina	3,426	1,895	1,073	121	124	163	44	16	6	80
South Dakota	710	313	150	43	18	11	4	1	3	10
Tennessee	4,856	2,526	1,408	278	117	120	65	11	16	117
Texas	16,778	6,368	3,312	581	476	317	211	31	55	235
Utah	1,680	603	318	67	36	22	4	1	10	16
Vermont	547	246	123	31	9	7	10	2	5	11
Virginia	5,916	2,280	1,068	258	144	144	85	50	22	127
Washington	4,542	1,712	830	249	124	56	88	10	18	41
West Virginia	1,898	920	501	99	53	49	14	0	5	42
Wisconsin	4,785	1,646	819	296	76	85	56	4	27	47
Wyoming	490	230	136	21	14	6	2	2	4	6

Source: National Safety Council tabulations of National Center for Health Statistics mortality data.

[a] See pages 10 and 11 for U.S. totals of detailed categories within major types shown here.

[b] Deaths are by place of occurrence and exclude nonresident aliens. See also page 17.

Accidental Deaths by State and Type of Accident, 1987, Cont.

	Type of Accident[a]									
State	**Medical Misadventures[e]**	**Natural, Envir. Factors**	**Firearms**	**Air Transport**	**Machinery**	**Suffocation, Mechanical**	**Falling Object**	**Electric Current**	**Railway**	**Other Accident**
Total U.S.	**2,881**	**1,527**	**1,440**	**1,263**	**1,253**	**1,009**	**902**	**760**	**624**	**4,525**
Alabama	55	42	57	14	28	7	26	17	11	150
Alaska	1	16	8	65	8	7	10	5	0	15
Arizona	41	47	16	25	10	19	10	16	15	61
Arkansas	25	51	29	12	17	12	22	12	9	40
California	227	85	139	170	68	93	53	47	55	478
Colorado	33	36	18	62	15	17	13	12	2	47
Connecticut	52	17	9	8	6	6	35	2	4	60
Delaware	7	1	1	1	0	2	3	2	3	10
Dist. of Col.	18	11	1	3	1	2	0	4	1	18
Florida	154	58	44	70	26	44	16	48	35	222
Georgia	68	49	58	29	42	26	34	19	17	84
Hawaii	15	4	4	9	3	5	2	5	0	21
Idaho	10	5	11	10	9	7	7	2	2	20
Illinois	132	65	26	21	49	32	36	35	53	166
Indiana	65	32	38	19	26	35	34	40	23	82
Iowa	32	27	11	11	35	13	8	6	5	36
Kansas	23	16	14	5	27	17	8	16	6	31
Kentucky	43	21	44	11	48	7	34	13	11	99
Louisiana	50	27	55	21	33	24	17	31	8	115
Maine	16	4	4	9	7	6	4	1	1	13
Maryland	74	27	4	9	26	10	9	9	19	91
Massachusetts	73	24	7	10	12	16	9	19	18	97
Michigan	90	47	34	175	34	29	25	14	8	109
Minnesota	62	18	13	25	32	29	28	13	11	91
Mississippi	21	31	68	5	22	11	19	10	4	51
Missouri	62	49	37	20	34	21	30	19	11	66
Montana	4	10	10	19	14	6	4	3	6	15
Nebraska	28	12	10	15	18	8	6	8	5	18
Nevada	7	9	5	17	4	1	2	4	2	15
New Hampshire	8	6	0	3	6	2	1	3	1	16
New Jersey	85	37	19	12	10	23	11	16	16	188
New Mexico	19	37	6	17	2	6	7	4	4	27
New York	239	67	121	30	48	149	35	24	82	330
North Carolina	110	56	40	44	60	20	35	24	21	154
North Dakota	5	6	6	1	6	5	4	3	3	15
Ohio	131	33	45	18	61	23	15	24	14	228
Oklahoma	33	26	30	10	21	9	7	20	6	88
Oregon	28	21	13	19	21	12	15	6	4	49
Pennsylvania	243	68	35	26	63	28	53	28	24	274
Rhode Island	19	1	1	1	0	4	1	1	0	17
South Carolina	35	32	31	10	22	12	19	21	18	66
South Dakota	11	13	7	4	6	6	2	4	0	20
Tennessee	43	32	70	13	39	17	33	14	12	121
Texas	184	125	149	76	88	71	51	70	29	307
Utah	12	15	11	19	9	13	10	5	2	33
Vermont	14	6	2	6	4	0	6	0	0	10
Virginia	62	59	20	9	41	22	25	27	16	101
Washington	41	15	22	34	32	32	27	8	14	71
West Virginia	33	9	15	9	23	8	14	13	8	25
Wisconsin	16	19	19	24	34	32	19	11	4	58
Wyoming	2	3	3	8	3	3	8	2	1	6

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[c] See page 69 for motor-vehicle deaths by place of residence.
[d] Includes both transport and nontransport drownings.
[e] Complications and misadventures of surgical and medical care.

Nontransport Accidental Deaths[a] by State and Place of Accident, 1987

		Place of Accident									
State	Total[a]	Home	Farm	Mine, Quarry	Industrial Place	Place for Recreation or Sport	Street, Highway	Public Building	Resident Institution	Other[b]	Unspecified
Total U.S	**39,858**	**15,641**	**945**	**117**	**1,473**	**1,025**	**902**	**1,041**	**1,989**	**4,136**	**12,589**
Alabama	842	318	18	7	27	17	8	16	15	64	352
Alaska	135	38	0	0	14	3	3	2	2	43	30
Arizona	576	247	3	5	10	27	20	29	24	99	112
Arkansas	535	236	18	4	16	13	14	6	34	63	131
California	4,068	1,862	23	4	116	64	147	191	168	467	1,026
Colorado	540	196	15	3	14	17	12	20	49	73	141
Connecticut	431	115	0	1	37	8	7	5	14	31	213
Delaware	100	40	3	0	3	2	2	1	2	13	34
Dist. of Col.	152	31	1	0	6	1	4	3	8	38	60
Florida	1,979	934	9	3	86	73	39	64	200	273	298
Georgia	1,152	634	37	0	56	39	27	36	91	114	118
Hawaii	161	42	1	0	6	11	2	4	4	35	56
Idaho	132	48	2	3	6	8	4	3	12	24	22
Illinois	1,636	710	40	3	65	43	68	75	70	172	390
Indiana	874	327	34	3	47	21	13	15	33	55	326
Iowa	461	196	43	3	14	5	12	10	61	27	90
Kansas	438	165	30	3	24	11	2	7	45	27	124
Kentucky	733	237	50	15	25	13	6	10	23	66	288
Louisiana	802	276	12	2	36	28	11	7	21	130	279
Maine	154	59	1	1	5	2	4	2	3	27	50
Maryland	646	251	7	2	17	5	22	5	31	46	260
Massachusetts	858	263	0	0	36	15	23	23	48	52	398
Michigan	1,180	520	18	4	54	56	34	25	36	87	346
Minnesota	746	240	37	0	25	28	6	15	73	24	298
Mississippi	593	264	27	0	26	18	20	10	19	43	166
Missouri	967	389	45	1	24	28	17	16	57	80	310
Montana	160	67	5	4	12	7	4	3	12	17	29
Nebraska	293	129	24	1	10	9	13	8	34	8	57
Nevada	134	40	3	0	4	10	6	12	5	23	31
New Hampshire	138	49	2	0	6	3	3	0	5	11	59
New Jersey	1,097	379	1	0	36	21	36	30	24	84	486
New Mexico	247	93	7	2	5	9	8	3	14	58	48
New York	2,787	889	20	0	48	28	51	50	137	357	1,207
North Carolina	1,311	454	41	0	60	19	19	21	37	134	526
North Dakota	107	43	11	0	6	2	2	2	8	8	25
Ohio	1,581	593	37	7	57	45	20	44	59	121	598
Oklahoma	587	185	17	0	20	23	11	12	21	43	255
Oregon	490	185	13	1	16	12	14	14	22	76	137
Pennsylvania	2,072	821	35	6	76	26	64	35	81	115	813
Rhode Island	143	63	0	0	4	4	2	4	14	15	37
South Carolina	707	283	21	0	26	24	5	11	11	94	232
South Dakota	141	32	16	1	2	5	4	0	9	11	61
Tennessee	993	381	32	6	28	34	18	23	38	86	347
Texas	2,666	936	73	2	115	97	22	92	93	293	943
Utah	239	93	10	0	12	15	2	3	6	40	58
Vermont	97	26	3	0	3	5	3	2	6	9	40
Virginia	1,071	423	20	7	55	14	24	21	50	111	346
Washington	728	297	9	2	22	37	24	22	49	112	154
West Virginia	355	145	15	6	19	4	6	4	16	55	85
Wisconsin	746	372	49	3	31	8	12	22	92	75	82
Wyoming	77	25	7	2	5	8	2	3	3	7	15

Source: National Safety Council tabulations of National Center for Health Statistics mortality data.

[a] Excludes: transport deaths, E800-E848, 51,388 deaths; complications and misadventures of surgical and medical care, E870-E879, 2,881 deaths; late effects, E929, 742 deaths; and adverse effects of drugs in therapeutic use, E930-E949, 151 deaths; for which place of accident is not coded.

[b] Includes mostly outdoor public nonrecreational places.

Comparability of Accidental Death Totals

Accidental deaths are classified on the basis of a World Health Organization standard, "The International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD)." The ICD is revised each decade and these revisions can affect comparability from year to year.

The sixth revision (1948) substantially expanded the list of external causes and provided for classifying the place of occurrence. Changes in the classification procedures for this revision as well as the seventh (1958) and eighth (1968) revisions classified as disease deaths some cases previously classified as accidents. The eighth revision also expanded and reorganized some external cause sections. The ninth revision, which took effect in 1979, provides more detail on the agency involved, the victim's activity, and the accident location. Specific external cause categories affected by the revisions are noted in the historical tables.

Beginning with 1970 data, tabulations published by the National Center for Health Statistics no longer include deaths of nonresident aliens. In 1987, there were 529 such accidental deaths of which 297 were motor-vehicle.

Accidental Deaths and Death Rates, Canadian Provinces, 1988

Province	ALL TYPES[a]		Motor-Vehicle	Falls	Fires, Burns	Drowning[c]	Ingest. of Food, Object	Poison (solid, liquid)
	Number	Rate[b]						
All Provinces	**9,152**	**35.3**	**4,108**	**2,100**	**402**	**392**	**344**	**360**
Alberta	863	36.0	467	158	36	20	19	10
British Columbia	1,196	40.1	521	247	45	42	22	90
Manitoba	402	37.1	155	85	29	21	15	15
New Brunswick	306	42.8	166	53	24	17	6	5
Newfoundland	163	28.7	68	34	9	19	6	3
Northwest Territories	33	63.1	5	5	4	5	0	1
Nova Scotia	351	39.8	151	77	30	12	24	8
Ontario	3,110	33.0	1,261	896	105	125	141	156
Prince Edward Island	53	41.1	19	20	4	1	3	2
Quebec	2,185	32.9	1,076	417	96	103	87	60
Saskatchewan	467	46.1	208	107	20	26	21	8
Yukon	23	90.9	11	1	0	1	0	2
Rate[b] (All Provinces)		**35.3**	**15.8**	**8.1**	**1.6**	**1.5**	**1.3**	**1.4**

Source: Vital Statistics and Health Status Section, Health Division, Statistics Canada.

[a] Includes types not shown separately.

[b] Per 100,000 population.

[c] Excludes water transport drownings.

Accidental Deaths and Death Rates by Nation

Nation	Year	Deaths	Rate[a]	Nation	Year	Deaths	Rate[a]
Hong Kong	1987	776	13.8	Yugoslavia	1987	9,273	39.6
Singapore	1987	431	16.5	Scotland	1988	2,026	39.8
Bahrain	1987	71	17.1	Bulgaria	1987	3,755	41.9
England, Wales	1988	11,322	22.5	Uruguay	1986	1,345	44.3
Chile	1987	3,038	24.2	Portugal	1988	4,630	45.0
Netherlands	1987	3,597	24.5	Belgium	1986	4,451	45.1
Japan	1988	30,212	24.8	New Zealand	1986	1,507	46.0
Thailand	1987	14,009	26.1	Norway	1987	1,957	46.7
Kuwait	1987	535	28.6	Ecuador	1987	4,756	47.9
Iceland	1988	77	30.8	Poland	1988	18,169	48.0
Ireland	1987	1,106	31.2	Greece	1987	4,861	48.7
Costa Rica	1988	902	31.5	Denmark	1988	2,598	50.7
Mauritius	1987	317	31.6	Switzerland	1988	3,352	50.8
West Germany	1988	19,778	32.2	Luxembourg	1988	191	51.2
Panama	1987	780	34.3	Finland	1987	2,565	52.0
Northern Ireland	1988	543	34.4	Austria	1988	3,976	52.3
Sweden	1987	2,893	34.4	Czechoslovakia	1988	8,584	55.0
Australia	1988	5,751	34.8	France	1988	33,101	59.2
Israel	1986	1,531	35.6	Hungary	1988	7,619	71.9
Canada	1987	9,492	37.0	Hungary	1988	7,619	71.9
United States	**1987**	**95,020**	**39.0**	Cuba	1987	7,612	73.9

Source: World Health Organization.

NOTE: Differences in reporting among nations affect comparisons.

[a] Per 100,000 population.

Children and youths

Deaths. For children and youths aged 1 to 24 years, accidents are the leading cause of death, accounting for almost half of the 54,239 total deaths of these persons in 1987 (the latest detailed data available, see table below). Motor-vehicle accidents were the leading cause of accidental death for this age group, followed by drowning and fires and burns. Although motor-vehicle deaths are the leading type overall, information not shown below indicates that for those under age 5, fires are the leading cause of accidental deaths in many highly urban states, and drownings are the leading cause in several other states.

By single year ages, accidental deaths increase markedly during the teen years, from under 500 for those age 13 to over 2,100 for those age 18. Motor-vehicle accidents account for almost all of this increase.

For infants under 1 year of age, accidents are the fifth leading cause of death, following certain conditions originating in the perinatal period, congenital anomalies, sudden infant death syndrome, and heart disease (see page 6). Although accidents account for only about 3 per cent of the deaths for those under age 1, the number of accidental deaths for this age is greater than that for any other age less than 16.

Total Deaths and Accidental Deaths, Ages 0-24, 1987

Age	Population (000)	All Deaths	Accidental Deaths	Motor-Vehicle	Drowning	Fires, Burns	Firearms	Poison (solid, liquid)	Falls	Mechanical Suffocation	Other Accident
Under 1 year . . .	3,793	38,408	1,077	250	144	119	2	18	39	200	305
1 to 24 years	**86,879**	**54,239**	**25,814**	**17,833**	**2,354**	**1,431**	**679**	**474**	**437**	**289**	**2,317**
1 year	3,643	2,843	854	258	206	172	4	13	23	34	144
2 years	3,611	1,931	795	254	210	201	7	3	16	13	91
3 years	3,560	1,481	710	242	156	187	14	4	17	7	83
4 years	3,668	1,218	562	235	92	144	11	1	12	8	59
5 years	3,651	972	458	219	74	78	13	3	8	13	50
6 years	3,612	954	458	275	69	52	14	1	5	8	34
7 years	3,625	851	419	226	68	67	6	2	5	8	37
8 years	3,389	793	378	220	46	43	14	3	5	7	40
9 years	3,384	731	355	201	50	38	19	4	2	10	31
10 years	3,420	663	340	192	46	26	23	1	5	11	36
11 years	3,236	748	356	197	52	38	17	1	4	15	32
12 years	3,280	823	389	210	66	17	35	1	6	14	40
13 years	3,226	938	452	263	62	12	37	1	8	16	53
14 years	3,323	1,270	593	394	60	21	32	4	9	9	64
15 years	3,539	1,755	926	673	92	18	42	11	11	9	70
16 years	3,845	2,784	1,548	1,235	111	15	49	13	13	8	104
17 years	3,761	3,334	1,819	1,476	105	22	37	25	17	11	126
18 years	3,625	3,827	2,137	1,739	108	36	42	30	22	7	153
19 years	3,690	3,915	2,098	1,682	124	28	50	27	30	11	146
20 years	3,733	4,076	2,014	1,571	119	28	33	45	35	14	169
21 years	3,758	4,392	2,092	1,621	98	40	44	45	53	12	179
22 years	3,942	4,476	2,062	1,565	105	42	43	74	43	12	178
23 years	4,120	4,671	2,031	1,489	120	51	36	77	44	19	195
24 years	4,238	4,793	1,968	1,396	115	55	57	85	44	13	203

Source: Based on 1987 National Center for Health Statistics data.

Injuries. Of the 57.7 million injuries suffered in the U.S. in 1988, about 46 per cent of the victims were under 25 years of age, according to information from the National Health Interview Survey (see page 13). An estimated 142,000 emergency-room treated injuries were associated with toys in 1988 according to the Consumer Product Safety Commission (see page 96). Nursery equipment was associated with about 84,000 emergency-room treated injuries. A recent study[a] of children under age 1 treated at one hospital emergency room showed that falls are by far the leading cause of unintentional injury, accounting for almost half the treated cases.

[a] Rivara, F.P., Kamitsuka, M.D., Quan, L. Injuries to children younger than 1 year of age. *Pediatrics, 81* (1), January 1988, 93-97.

Trends in accidental deaths, 1979-1989

More progress was made during the decade of the 1980s than in any prior decade in terms of the reduction in the total number of accidental deaths. Accidental deaths were reduced by 10 per cent from 105,312 in 1979 to an estimated 94,500 in 1989, while the death rate per 100,000 population dropped 19 per cent from 46.9 to 38.1, the lowest rate ever recorded. If the effect of the change in the age distribution of the population is eliminated, then the death rate declined 21 per cent. However, as was the case at the beginning of the 1980s, accidents still rank as the fourth leading cause of death in the United States.

By age, slight increases in deaths during the 1980s for the 25 to 44 and 65 and over age groups were more than offset by decreases in other age groups. Deaths for the 15 to 24 year age group declined most, by almost 40 per cent from 26,574 in 1979 to an estimated 16,000 in 1989. Despite the increase in deaths for certain ages, death rates per 100,000 population declined for all age groups, ranging from –10 per cent for those 65 and over to –30 per cent for those 15 to 24 years of age. Population age groups younger than 25 had greater decreases in death rates than groups older than 25.

Of the four major classes of accidents (motor-vehicle, work, home, and public), three showed decreases in deaths during the 1980s. Only home deaths showed no net change, totaling 22,500 in both 1979 and 1989. The greatest decrease was in work deaths, reduced by 20 per cent from 13,000 in 1979 to 10,400 in 1989, while motor-vehicle and public deaths declined by 12 and 10 per cent, respectively. Population death rates declined for all four classes during the 1980s. Work death rates were reduced most, from 5.8 in 1979 to 4.2 in 1989, a decrease of 28 per cent, while home death rates were reduced least, from 10.0 in 1979 to 9.1 in 1989, a decrease of 9 per cent. The 1989 work death rate of 4.2 per 100,000 population and the 1989 motor-vehicle mileage death rate of 2.25 per 100 million vehicle miles are the lowest on record. Work deaths per 100,000 workers declined from 13 in 1979 to 9 in 1989.

For motor-vehicle accidents, the greatest progress was made by the 15 to 24 year age group. Deaths for this group declined by 36 per cent and the rate was reduced by 25 per cent. Despite increases in motor-vehicle deaths during the decade for 25 to 44 year olds (+3 per cent) and especially those 65 and over (+22 per cent), motor-vehicle death rates on a population basis decreased for all age groups. For work deaths and death rates, the 15 to 24 year age group declined most. Work deaths for this age group were reduced by over 50 per cent from 3,100 in 1979 to 1,400 in 1989. Home and public death rates showed decreases for all age groups except home deaths for the 25 to 44 year age group, which increased by about 14 per cent from 1979 to 1989.

By type of accident, increases during the decade in deaths from suffocation by ingestion and poisoning by solids and liquids were more than offset by decreases in the other types. Deaths from poisoning by gas decreased most (–39 per cent), and other substantial progress was made in drowning (–33 per cent), fires and burns (–27 per cent), and firearms (–20 per cent). Motor-vehicle deaths decreased by a smaller percentage (–12 per cent), but this represents a decrease of over 6,600 deaths from 53,524 in 1979 to 46,900 in 1989. Deaths from suffocation by ingestion increased by 20 per cent, while deaths from poisoning by solids and liquids increased by 77 per cent, entirely attributable to drug-related accidents.

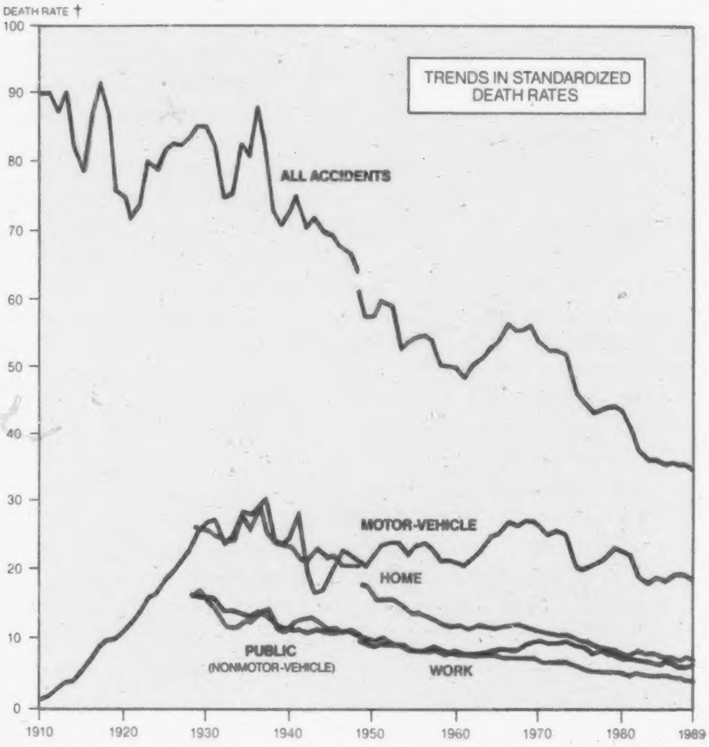
Drowning death rates per 100,000 population declined for all age groups during the 1980s, although the greatest declines were for the 15 to 24 and 25 to 44 year age groups. Fires and burns death rates also declined for all age groups, with the greatest decreases in the 15 to 24 and 45 to 64 year age groups. Solid and liquid poisoning deaths rates for the 25 to 44 year age group doubled during the decade from 2.2 in 1979 to 4.4 in 1989.

For more information on trends, see pages 24-30, 75, 89, and 99.

Trends in accidental death rates

(See pages 26 and 27 for death totals and crude rates.)

Between 1912 and 1989, accidental deaths per 100,000 population were reduced 54 per cent from 82 to 38. The 76 per cent reduction from 79 to 19 in the nonmotor-vehicle death rate was offset in part by the sixfold increase in the motor-vehicle death rate from 3 to 19. The reduction in the overall rate during a period when the nation's population more than doubled has resulted in 3,100,000 fewer people being killed accidentally than would have been killed if the rate had not been reduced.



Per Cent Change in Standardized Death Rates

	from 1988	from 1979
All Accidents	–3%	–21%
Motor-Vehicle	–6%	–20%
Work	–5%	–29%
Home	–1%	–16%
Public	+3%	–22%

The age distribution of the population has changed greatly during this century, and these shifts can affect the accidental death rate. For example, if the proportion of the population aged 75 years and over increases, the overall accidental death rate will also tend to increase since the 75 and over age group has a much higher than average death rate. In order to eliminate the effects of population shifts over long periods of time, death rates can be standardized to the age distribution of the population in any one particular year (chosen as 1940). The 1989 standardized death rate of 34.7 per 100,000 population for all accidents was 3 per cent below the 1988 rate. The 1989 rates for motor-vehicle, work, and home showed decreases, while public showed an increase. Standardized death rates from 1910 to 1989 are shown in the chart above.

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†Deaths per 100,000 population, adjusted to 1940 age distribution. The break at 1948 shows the estimated effect of classification changes.

Trends in nonmotor-vehicle deaths

In 1989, falls, solid and liquid poisonings, drownings, and fires and burns were the leading causes of nonmotor-vehicle accidental deaths. Also in 1989, individuals aged 75 and over were the most frequent victims of nonmotor-vehicle accidental deaths in terms of both death totals and death rates.

The 1989 death total of 12,400 for accidental falls was a slight increase over 1988. However, since 1979, the death rate and the number of fatalities due to falls have declined for all age groups. Individuals aged 65 and over suffer the most accidental deaths due to falls, accounting for at least 70 per cent of falls deaths each year since 1979. Over one half of all falls deaths occur in the home.

Beginning in 1988, accidental poisonings from solid and liquid substances became the third leading cause of accidental death after motor vehicles and falls. Although the death rates for several age groups have dropped since 1979, the rate for the 25 to 44 year group more than doubled from 2.0 to 4.4.

The accidental drowning death total of 4,600 and the death rate of 1.9 remained constant from 1988 to 1989. Both are the lowest on record. Deaths have decreased by 33 per cent since 1979 and the death rate has decreased by 40 per cent. Drowning death rates have fallen in all age groups since 1979, however the rate decrease among the 15 to 24 year age group has been the most substantial.

The accidental death total for fires and burns, 4,400, and the death rate of 1.8 are also the lowest on record. Both declined from 1988 to 1989. Since 1979, the death rate has decreased 34 per cent and deaths have fallen 27 per cent. Children less than five and individuals over 65 have the highest fires and burns death rate. About three fourths of fire deaths occur in the home.

While you speak!

While you make a 10-minute safety speech—2 persons will be killed and about 170 will suffer a disabling injury. Costs will amount to $2,800,000. On the average, there are 11 accidental deaths and about 1,030 disabling injuries every hour during the year.

Deaths and disabling injuries in the nation by class of accident occurred at the following rates in 1989:

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Class of Accident	Severity	One Every—	No. per Hour	No. per Day	No. per Week	Total 1989
All Accidents	**Deaths**	**6 minutes**	**11**	**259**	**1,820**	**94,500**
	Injuries	4 seconds	1,030	24,700	173,100	9,000,000
Motor-Vehicle	**Deaths**	**11 minutes**	**5**	**128**	**900**	**46,900**
	Injuries	19 seconds	190	4,700	32,700	1,700,000
Work	**Deaths**	**51 minutes**	**1**	**28**	**200**	**10,400**
	Injuries	19 seconds	190	4,700	32,700	1,700,000
Workers Off-the-Job	**Deaths**	**14 minutes**	**4**	**101**	**710**	**36,900**
	Injuries	11 seconds	320	7,700	53,800	2,800,000
Home	**Deaths**	**23 minutes**	**3**	**62**	**430**	**22,500**
	Injuries	9 seconds	390	9,300	65,400	3,400,000
Public Nonmotor-Vehicle	**Deaths**	**28 minutes**	**2**	**52**	**370**	**19,000**
	Injuries	13 seconds	270	6,600	46,200	2,400,000

Source: National Safety Council estimates.

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Principal Classes of Accidental Deaths, 1903-1989

Year	TOTAL[a]		Motor-Vehicle		Work		Home		Public Nonmotor-Vehicle	
	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]
1903	70,600	87.2	(c)		(c)		(c)		(c)	
1904	71,500	86.6	(c)		(c)		(c)		(c)	
1905	70,900	84.2	(c)		(c)		(c)		(c)	
1906	80,000	93.2	400	0.5	(c)		(c)		(c)	
1907	81,900	93.6	700	0.8	(c)		(c)		(c)	
1908	72,300	81.2	800	0.9	(c)		(c)		(c)	
1909	72,700	80.1	1,300	1.4	(c)		(c)		(c)	
1910	77,900	84.4	1,900	2.0	(c)		(c)		(c)	
1911	79,300	84.7	2,300	2.5	(c)		(c)		(c)	
1912	78,400	82.5	3,100	3.3	(c)		(c)		(c)	
1913	82,500	85.5	4,200	4.4	(c)		(c)		(c)	
1914	77,000	78.6	4,700	4.8	(c)		(c)		(c)	
1915	76,200	76.7	6,600	6.6	(c)		(c)		(c)	
1916	84,800	84.1	8,200	8.1	(c)		(c)		(c)	
1917	90,100	88.2	10,200	10.0	(c)		(c)		(c)	
1918	85,100	82.1	10,700	10.3	(c)		(c)		(c)	
1919	75,500	71.9	11,200	10.7	(c)		(c)		(c)	
1920	75,900	71.2	12,500	11.7	(c)		(c)		(c)	
1921	74,000	68.4	13,900	12.9	(c)		(c)		(c)	
1922	76,300	69.4	15,300	13.9	(c)		(c)		(c)	
1923	84,400	75.7	18,400	16.5	(c)		(c)		(c)	
1924	85,600	75.6	19,400	17.1	(c)		(c)		(c)	
1925	90,000	78.4	21,900	19.1	(c)		(c)		(c)	
1926	91,700	78.7	23,400	20.1	(c)		(c)		(c)	
1927	92,700	78.4	25,800	21.8	(c)		(c)		(c)	
1928	95,000	79.3	28,000	23.4	19,000	15.8	30,000	24.9	21,000	17.4
1929	98,200	80.8	31,200	25.7	20,000	16.4	30,000	24.6	20,000	16.4
1930	99,100	80.5	32,900	26.7	19,000	15.4	30,000	24.4	20,000	16.3
1931	97,300	78.5	33,700	27.2	17,500	14.1	29,000	23.4	20,000	16.1
1932	89,000	71.3	29,500	23.6	15,000	12.0	29,000	23.2	18,000	14.4
1933	90,932	72.4	31,363	25.0	14,500	11.6	29,500	23.6	18,500	14.7
1934	100,977	79.9	36,101	28.6	16,000	12.7	34,000	26.9	18,000	14.2
1935	99,773	78.4	36,369	28.6	16,500	13.0	32,000	25.2	18,000	14.2
1936	110,052	85.9	38,089	29.7	18,500	14.5	37,000	28.9	19,500	15.2
1937	105,205	81.7	39,643	30.8	19,000	14.8	32,000	24.8	18,000	14.0
1938	93,805	72.3	32,582	25.1	16,000	12.3	31,000	23.9	17,000	13.1
1939	92,623	70.8	32,386	24.7	15,500	11.8	31,000	23.7	16,000	12.2
1940	96,885	73.4	34,501	26.1	17,000	12.9	31,500	23.9	16,500	12.5
1941	101,513	76.3	39,969	30.0	18,000	13.5	30,000	22.5	16,500	12.4
1942	95,889	71.6	28,309	21.1	18,000	13.4	30,500	22.8	16,000	12.0
1943	99,038	73.8	23,823	17.8	17,500	13.0	33,500	25.0	17,000	12.7
1944	95,237	71.7	24,282	18.3	16,000	12.0	32,500	24.5	16,000	12.0
1945	95,918	72.4	28,076	21.2	16,500	12.5	33,500	25.3	16,000	12.1
1946	98,033	70.0	33,411	23.9	16,500	11.8	33,000	23.6	17,500	12.5
1947	99,579	69.4	32,697	22.8	17,000	11.9	34,500	24.1	18,000	12.6
1948 (5th Revn.)[d]	98,001	67.1	32,259	22.1	16,000	11.0	35,000	24.0	17,000	11.6
1948 (6th Revn.)[d]	93,000	63.7	32,259	22.1	16,000	11.0	31,000	21.2	16,000	11.0
1949	90,106	60.6	31,701	21.3	15,000	10.1	31,000	20.9	15,000	10.1
1950	91,249	60.3	34,763	23.0	15,500	10.2	29,000	19.2	15,000	9.9
1951	95,871	62.5	36,996	24.1	16,000	10.4	30,000	19.6	16,000	10.4
1952	96,172	61.8	37,794	24.3	15,000	9.6	30,500	19.6	16,000	10.3
1953	95,032	60.1	37,955	24.0	15,000	9.5	29,000	18.3	16,500	10.4
1954	90,032	55.9	35,586	22.1	14,000	8.7	28,000	17.4	15,500	9.6
1955	93,443	56.9	38,426	23.4	14,200	8.6	28,500	17.3	15,500	9.4
1956	94,780	56.6	39,628	23.7	14,300	8.5	28,000	16.7	16,000	9.6
1957	95,307	55.9	38,702	22.7	14,200	8.3	28,000	16.4	17,500	10.3
1958	90,604	52.3	36,981	21.3	13,300	7.7	26,500	15.3	16,500	9.5
1959	92,080	52.2	37,910	21.5	13,800	7.8	27,000	15.3	16,500	9.3
1960	93,806	52.1	38,137	21.2	13,800	7.7	28,000	15.6	17,000	9.4
1961	92,249	50.4	38,091	20.8	13,500	7.4	27,000	14.8	16,500	9.0
1962	97,139	52.3	40,804	22.0	13,700	7.4	28,500	15.3	17,000	9.2
1963	100,669	53.4	43,564	23.1	14,200	7.5	28,500	15.1	17,500	9.3
1964	105,000	54.9	47,700	25.0	14,200	7.4	28,000	14.6	18,500	9.7
1965	108,004	55.8	49,163	25.4	14,100	7.3	28,500	14.7	19,500	10.1
1966	113,563	58.1	53,041	27.1	14,500	7.4	29,500	15.1	20,000	10.2

See source and footnotes on page 27.

Principal Classes of Accidental Deaths, 1903-1989, Cont.

Year	TOTAL[a]		Motor-Vehicle		Work		Home		Public Nonmotor-Vehicle	
	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]	Deaths	Rate[b]
1967	113,169	57.3	52,924	26.8	14,200	7.2	29,000	14.7	20,500	10.4
1968	114,864	57.6	54,862	27.5	14,300	7.2	28,000	14.0	21,500	10.8
1969	116,385	57.8	55,791	27.7	14,300	7.1	27,500	13.7	22,500	11.2
1970	114,638	56.2	54,633	26.8	13,800	6.8	27,000	13.2	23,500	11.5
1971	113,439	54.8	54,381	26.3	13,700	6.6	26,500	12.8	23,500	11.4
1972	115,448	55.2	56,278	26.9	14,000	6.7	26,500	12.7	23,500	11.2
1973	115,821	54.8	55,511	26.3	14,300	6.8	26,500	12.5	24,500	11.6
1974	104,622	49.0	46,402	21.8	13,500	6.3	26,000	12.2	23,000	10.8
1975	103,030	47.8	45,853	21.3	13,000	6.0	25,000	11.6	23,000	10.6
1976	100,761	46.3	47,038	21.6	12,500	5.7	24,000	11.0	21,500	10.0
1977	103,202	47.0	49,510	22.5	12,900	5.9	23,200	10.6	22,200	10.1
1978	105,561	47.5	52,411	23.6	13,100	5.9	22,800	10.3	22,000	9.9
1979	105,312	46.9	53,524	23.8	13,000	5.8	22,500	10.0	21,000	9.4
1980	105,718	46.5	53,172	23.4	13,200	5.8	22,800	10.0	21,300	9.4
1981	100,704	43.9	51,385	22.4	12,500	5.4	21,700	9.4	19,800	8.6
1982	94,082	40.6	45,779	19.7	11,900	5.1	21,200	9.1	19,500	8.4
1983	92,488	39.5	44,452	19.0	11,700	5.0	21,200	9.0	19,400	8.3
1984	92,911	39.3	46,263	19.6	11,500	4.9	21,200	9.0	18,300	7.7
1985	93,457	39.1	45,901	19.2	11,500	4.8	21,600	9.0	18,800	7.9
1986	95,277	39.5	47,865	19.9	11,100	4.6	21,700	9.0	18,700	7.8
1987	95,020	39.0	48,290	19.8	11,300	4.6	21,400	8.8	18,400	7.6
1988	96,500	39.3	46,900	19.9	10,800	4.4	22,500	9.2	18,500	7.5
1989	94,500	38.1	46,900	18.9	10,400	4.2	22,500	9.1	19,000	7.7
Changes										
1979 to 1989	**−10%**	**−19%**	**−12%**	**−21%**	**−20%**	**−28%**	**0%**	**−9%**	**−10%**	**−18%**
1988 to 1989	**− 2%**	**− 3%**	**− 4%**	**− 5%**	**− 4%**	**− 5%**	**0%**	**−1%**	**+ 3%**	**+ 3%**

Source: Total and motor-vehicle deaths, 1903-1932 based on National Center for Health Statistics death registration states; 1933-1948 (5th Revn.), 1949-1963, 1965-1987 are NCHS totals for the U.S. All other figures are National Safety Council estimates: 1989 preliminary, 1988 revised. See page 21 for comparability.

[a] Duplications between Motor-Vehicle, Work and Home are eliminated in the TOTAL column.

[b] Rates are deaths per 100,000 population.

[c] Data insufficient to estimate yearly totals.

[d] In 1948, a revision was made in the International List of Causes of Death. The first figures for 1948 are comparable with those for earlier years, the second with those for later years.

Estimated Structure Fires and Loss by Property Use, 1988

The table below shows the number of fires and loss by property use for structure fires in 1988, as estimated by the National Fire Protection Association. Structure and nonstructure fires together numbered 2,436,500 in 1988, with a property loss of $8,352,000,000.

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Property Use	Fires		Loss	
	Number	%	$ millions	%
Total	**745,000**	**100.0%**	**7,188**	**100.0%**
Residential	552,500	74.2	4,020	55.9
One- and two-family dwellings[a]	*432,500*	*58.1*	*3,349*	*46.6*
Apartments	*106,000*	*14.2*	*548*	*7.6*
Hotels and motels	*8,000*	*1.1*	*100*	*1.4*
Other residential	*6,000*	*0.8*	*23*	*0.3*
Storage in structures[b]	50,000	6.7	735	10.2
Stores and offices	38,000	5.1	754	10.5
Special structures	33,500	4.5	168	2.4
Industry, utility, defense[b]	27,000	3.6	1,079	15.0
Public assembly	20,000	2.7	297	4.1
Institutional	14,000	1.9	23	0.3
Educational	10,000	1.3	112	1.6

Source: Estimates of the National Fire Protection Association based on data reported by fire departments responding to the 1988 National Fire Experience Survey. In addition to the structure fires and losses listed above, there were 675,500 fires in brush and grass wildlands with no value or loss estimated, 459,000 highway vehicle fires with $798,000,000 loss, 333,500 rubbish fires (including dumpsters) with no value or loss estimated, 63,000 fires outside of structures involving outside storage, crops, timber, etc. but excluding vehicles with $185,000,000 loss, 18,500 other vehicle fires with $143,000,000 loss and 142,000 miscellaneous fires with $38,000,000 loss.

[a] Includes mobile homes.

[b] Incidents for these property uses handled by private fire brigades or fixed suppression systems are not included.

Accidental Deaths and Death Rates by Age, 1903-1989

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
				DEATHS				
1903	70,600	9,400	8,200	10,300	20,100	12,600	10,000	
1904	71,500	9,700	9,000	10,500	19,900	12,500	9,900	
1905	70,900	9,800	8,400	10,600	19,600	12,600	9,900	
1906	80,000	10,000	8,400	13,000	24,000	13,600	11,000	
1907	81,900	10,500	8,300	13,400	24,900	14,700	10,100	
1908	72,300	10,100	7,600	11,300	20,500	13,100	9,700	
1909	72,700	9,900	7,400	10,700	21,000	13,300	10,400	
1910	77,900	9,900	7,400	11,900	23,600	14,100	11,000	
1911	79,300	11,000	7,500	11,400	22,400	15,100	11,900	
1912	78,400	10,600	7,900	11,500	22,200	14,700	11,500	
1913	82,500	9,800	7,400	12,200	24,500	16,500	12,100	
1914	77,000	10,600	7,900	11,000	21,400	14,300	11,800	
1915	76,200	10,300	8,200	10,800	20,500	14,300	12,100	
1916	84,800	11,600	9,100	7,700	24,900	17,800	13,700	
1917	90,100	11,600	9,700	11,700	24,400	18,500	14,200	
1918	85,100	10,600	10,100	10,600	21,900	17,700	14,200	
1919	75,500	10,100	10,000	10,200	18,600	13,800	12,800	
1920	75,900	10,200	9,900	10,400	18,100	13,900	13,400	
1921	74,000	9,600	9,500	9,800	18,000	13,900	13,200	
1922	76,300	9,700	9,500	10,000	18,700	14,500	13,900	
1923	84,400	9,900	9,800	11,000	21,500	16,900	15,300	
1924	85,600	10,200	9,900	11,900	20,900	16,800	15,900	
1925	90,000	9,700	10,000	12,400	22,200	18,700	17,000	
1926	91,700	9,500	9,900	12,600	22,700	19,200	17,800	
1927	92,700	9,200	9,900	12,900	22,900	19,700	18,100	
1928	95,000	8,900	9,800	13,100	23,300	20,600	19,300	
1929	98,200	8,600	9,800	14,000	24,300	21,500	20,000	
1930	99,100	8,200	9,100	14,000	24,300	22,200	21,300	
1931	97,300	7,800	8,700	13,500	23,100	22,500	21,700	
1932	89,000	7,100	8,100	12,000	20,500	20,100	21,200	
1933	90,932	6,948	8,195	12,225	21,005	20,819	21,740	
1934	100,977	7,034	8,272	13,274	23,288	24,197	24,912	
1935	99,773	6,971	7,808	13,168	23,411	23,457	24,958	
1936	110,052	7,471	7,866	13,701	24,990	26,535	29,489	
1937	105,205	6,969	7,704	14,302	23,955	24,743	27,532	
1938	93,805	6,646	6,593	12,129	20,464	21,689	26,284	
1939	92,628	6,668	6,378	12,066	20,164	20,842	26,505	
1940	96,885	6,851	6,466	12,763	21,166	21,840	27,799	
1941	101,513	7,052	6,702	14,346	22,983	22,509	27,921	
1942	95,889	7,220	6,340	13,732	21,141	20,764	26,692	
1943	99,038	8,039	6,636	15,278	20,212	20,109	28,764	
1944	95,237	7,912	6,704	14,750	19,115	19,097	27,659	
1945	95,918	7,741	6,836	12,446	19,393	20,097	29,405	
1946	98,033	7,949	6,545	13,366	20,705	20,249	29,219	
1947	99,579	8,219	6,069	13,166	21,155	20,513	30,457	
1948 (5th Revn.)[b]	98,001	8,387	5,859	12,595	20,274	19,809	31,077	
1948 (6th Revn.)[b]	93,000	8,350	5,850	12,600	20,300	19,300	9,800	16,800
1949	90,106	8,469	5,539	11,522	19,432	18,302	9,924	16,918
1950	91,249	8,389	5,519	12,119	20,663	18,665	9,750	16,144
1951	95,871	8,769	5,892	12,366	22,363	19,610	10,218	16,653
1952	96,172	8,871	5,980	12,787	21,950	19,892	10,026	16,667
1953	95,032	8,678	6,136	12,837	21,422	19,479	9,927	16,553
1954	90,032	8,380	5,939	11,801	20,023	18,299	9,652	15,938
1955	93,443	8,099	6,099	12,742	29,911	19,199	9,929	16,464
1956	94,780	8,173	6,319	13,545	20,986	19,207	10,160	16,393
1957	95,307	8,423	6,454	12,973	20,949	19,495	10,076	16,937
1958	90,604	8,789	6,514	12,744	19,658	18,095	9,431	15,373
1959	92,080	8,748	6,511	13,269	19,666	18,937	9,475	15,474
1960	93,806	8,950	6,836	13,457	19,600	19,385	9,689	15,829
1961	92,249	8,622	6,717	13,431	19,273	19,134	9,452	15,620
1962	97,139	8,705	6,751	14,557	19,955	20,335	10,149	16,687
1963	100,669	8,688	6,962	15,889	20,529	21,262	10,194	17,145
1964	100,500	8,670	7,400	17,420	22,080	22,100	10,400	16,930
1965	108,004	8,586	7,391	18,688	22,228	22,900	10,430	17,781
1966	113,563	8,507	7,958	21,030	23,134	24,022	10,706	18,206

See source and footnotes on page 30.

Accidental Deaths and Death Rates by Age, 1903-1989, Cont.

Year	ALL AGES		Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
1967	113,169		7,825	7,874	21,645	23,255	23,826	10,645	18,099
1968	114,864		7,263	8,369	23,012	23,684	23,896	10,961	17,679
1969	116,385		6,973	8,186	24,668	24,410	24,192	10,643	17,313
1970	114,638		6,594	8,203	24,336	23,979	24,164	10,644	16,718
1971	113,439		6,496	8,143	24,733	23,535	23,240	10,494	16,798
1972	115,448		6,142	8,242	25,762	23,852	23,658	10,446	17,346
1973	115,821		6,037	8,102	26,550	24,750	23,059	10,243	17,080
1974	104,622		5,335	7,037	24,200	22,547	20,334	9,323	15,846
1975	103,030		4,948	6,818	24,121	22,877	19,643	9,220	15,403
1976	100,761		4,692	6,308	24,316	22,399	19,000	8,823	15,223
1977	103,202		4,470	6,305	25,619	23,460	19,167	9,006	15,175
1978	105,561		4,766	6,118	26,622	25,024	18,774	9,072	15,185
1979	105,312		4,429	5,689	26,574	26,097	18,346	9,013	15,164
1980	105,718		4,479	5,224	26,206	26,722	18,140	8,997	15,950
1981	100,704		4,130	4,866	23,582	26,928	17,339	8,639	15,220
1982	94,082		4,108	4,504	21,306	25,135	15,907	8,224	14,898
1983	92,488		3,999	4,321	19,756	24,996	15,444	8,336	15,636
1984	92,911		3,652	4,198	19,801	25,498	15,273	8,424	16,065
1985	93,457		3,746	4,252	19,161	25,940	15,251	8,583	16,524
1986	95,277		3,843	4,226	19,975	27,201	14,733	8,499	16,800
1987	95,020		3,871	4,198	18,695	27,484	14,807	8,686	17,279
1988	96,500		4,100	4,200	18,000	28,300	15,000	8,600	18,300
1989	94,500		4,000	4,100	16,000	28,300	15,400	8,500	18,200
				Changes in Deaths					
1979 to 1989	**–10%**		**–10%**	**–28%**	**–40%**	**+8%**	**–16%**	**–6%**	**+20%**
1988 to 1989	**– 2%**		**– 2%**	**– 2%**	**–11%**	**0%**	**+ 3%**	**–1%**	**– 1%**
		Index		**DEATH RATES[c]**					
1903	87.2	98.7	98.7	46.8	65.0	87.4	111.7	299.8	
1904	86.6	103.2	99.1	50.9	64.9	84.6	108.1	290.0	
1905	84.2	98.2	98.6	47.0	64.1	81.4	106.2	282.5	
1906	93.2	114.5	99.1	46.5	77.1	97.3	111.7	306.0	
1907	93.6	114.4	102.7	45.5	78.0	98.8	117.8	274.2	
1908	81.2	100.0	97.5	41.2	64.4	79.5	102.2	256.7	
1909	80.1	97.0	4.2	39.6	59.9	79.6	101.0	268.2	
1910	84.4	103.1	92.8	39.1	65.3	87.3	104.0	276.0	
1911	84.7	103.6	101.9	39.3	62.1	81.4	108.7	292.1	
1912	82.5	100.0	97.1	40.5	62.3	79.2	103.2	275.8	
1913	85.5	103.4	88.4	37.4	65.2	85.6	112.5	281.7	
1914	78.6	95.1	94.3	38.9	58.5	73.2	94.6	268.1	
1915	76.7	91.1	90.8	39.7	57.3	69.0	92.4	268.8	
1916	84.1	100.6	101.4	43.3	40.8	82.5	112.1	297.6	
1917	88.2	105.4	108.4	45.3	62.1	79.8	113.8	301.2	
1918	82.1	100.1	91.0	46.5	58.7	72.2	106.3	294.2	
1919	71.9	87.2	87.2	45.9	55.3	60.1	81.8	262.0	
1920	71.2	86.3	87.4	44.9	55.5	56.9	85.6	289.5	
1921	68.4	82.5	80.8	42.4	51.4	55.5	79.4	259.8	
1922	69.4	84.7	80.6	41.5	51.4	57.1	81.4	265.1	
1923	75.7	92.2	82.0	42.4	55.6	64.5	92.6	282.8	
1924	75.6	91.1	82.9	42.4	58.6	61.7	90.2	283.5	
1925	78.4	94.6	78.6	42.3	59.7	64.7	97.8	293.9	
1926	78.7	95.1	77.9	41.4	59.9	65.4	98.2	298.7	
1927	78.4	94.8	75.9	41.0	60.2	65.2	98.0	295.4	
1928	79.3	91.4	74.4	40.4	59.9	65.6	99.9	306.2	
1929	80.8	98.1	73.3	40.0	63.1	67.7	102.1	308.9	
1930	80.5	97.9	71.8	36.9	62.3	67.0	102.9	317.9	
1931	78.5	95.1	69.9	35.2	59.7	63.0	102.1	313.3	
1932	71.3	86.1	65.1	32.8	52.7	55.6	89.3	296.9	
1933	72.4	86.9	65.5	33.4	53.6	56.3	90.8	295.3	
1934	79.9	95.4	68.1	33.9	57.8	61.8	103.3	328.5	
1935	78.4	93.0	68.5	32.2	56.9	61.6	98.0	319.8	
1936	85.9	101.5	74.4	32.9	58.8	65.3	108.6	367.4	
1937	81.7	95.5	69.6	32.7	60.9	62.1	99.3	333.4	
1938	72.3	84.0	65.3	28.5	51.3	52.5	85.4	308.9	
1939	70.8	81.4	62.9	28.2	50.7	51.2	81.0	300.0	
1940	73.4	84.1	64.8	28.8	53.5	53.2	83.4	305.7	

See source and footnotes on page 30.

Accidental Deaths and Death Rates by Age, 1903-1989, Cont.

Year	ALL AGES		Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
		Index							
1941	76.3	86.7	65.0	29.7	60.9	57.2	84.8	297.4	
1942	71.6	81.0	63.9	27.9	59.8	52.4	77.1	275.5	
1943	73.8	82.9	66.9	29.0	69.7	50.3	73.6	287.8	
1944	71.7	80.2	63.2	29.1	72.9	48.9	68.9	268.6	
1945	72.4	80.0	59.8	29.5	64.5	50.5	71.6	277.6	
1946	70.0	77.8	60.2	28.1	61.7	48.8	70.9	267.9	
1947	69.4	76.9	57.4	25.8	59.6	49.0	70.6	270.7	
1948 (5th Revn.)[b]	67.1	73.9	56.3	24.6	56.8	46.2	66.8	267.4	
1948 (6th Revn.)[b]	63.7	70.4	56.0	24.5	56.8	46.2	65.1	122.4	464.3
1949	60.6	66.7	54.4	23.0	52.2	43.5	60.6	120.4	450.7
1950	60.3	66.6	51.4	22.6	55.0	45.6	60.5	115.8	414.7
1951	62.5	69.0	50.8	23.6	57.7	49.0	62.7	117.1	413.6
1952	61.8	68.4	51.5	22.5	60.9	47.7	62.7	111.1	399.8
1953	60.1	66.6	49.5	22.1	61.4	46.4	60.5	106.7	383.6
1954	55.9	61.9	46.7	20.5	56.4	43.0	55.9	100.7	354.4
1955	56.9	63.2	43.9	20.7	60.1	44.7	57.7	100.8	350.2
1956	56.6	63.3	43.3	20.2	63.3	44.7	56.7	100.6	335.6
1957	55.9	62.2	43.5	19.9	59.5	44.6	56.6	97.5	333.3
1958	52.3	58.1	44.5	19.6	56.2	42.0	51.7	89.3	292.6
1959	52.2	58.1	43.6	18.9	56.5	42.1	53.2	87.7	284.7
1960	52.1	58.0	44.0	19.1	55.6	42.0	53.6	87.6	281.4
1961	50.4	56.1	42.0	18.1	54.0	41.2	52.1	83.8	267.9
1962	52.3	58.1	42.6	18.0	55.0	42.7	54.6	88.5	277.7
1963	53.4	59.5	42.8	18.2	57.2	44.0	56.3	87.9	277.0
1964	54.9	61.4	43.1	19.1	59.9	47.3	57.6	88.9	263.9
1965	55.8	62.3	43.4	18.7	61.6	47.7	58.8	88.5	268.7
1966	58.1	64.8	44.4	19.9	66.9	49.6	60.7	89.8	267.4
1967	57.3	64.0	42.2	19.4	66.9	49.7	59.2	88.5	257.4
1968	57.6	64.3	40.6	20.5	69.2	50.1	58.5	90.2	244.0
1969	57.8	64.6	40.2	20.0	71.8	51.2	58.4	86.6	232.0
1970	56.2	62.5	38.4	20.1	68.0	49.8	57.6	85.2	219.6
1971	54.8	60.7	37.7	20.1	66.1	48.4	54.7	82.7	213.2
1972	55.2	60.7	35.9	20.6	67.6	47.5	55.2	80.8	214.2
1973	54.8	60.1	35.8	20.6	68.2	48.0	53.3	77.3	206.3
1974	49.0	53.5	32.4	18.2	60.9	42.7	46.7	68.7	186.7
1975	47.8	52.0	30.7	17.8	59.5	42.3	44.9	66.2	175.5
1976	46.3	50.1	30.0	16.7	58.9	40.3	43.2	62.0	168.4
1977	47.0	50.6	28.7	17.0	61.3	40.9	43.4	61.5	164.0
1978	47.5	51.2	30.3	16.9	63.1	42.3	42.4	60.5	159.7
1979	46.9	50.4	27.6	16.1	62.6	42.7	41.3	58.8	154.8
1980	46.5	49.7	27.2	15.0	61.7	42.2	40.8	57.5	158.7
1981	43.9	46.8	24.4	14.1	56.0	41.2	38.9	54.3	147.5
1982	40.6	43.1	23.7	13.2	51.4	37.2	35.7	50.8	140.2
1983	39.5	41.7	22.7	12.7	48.5	35.9	34.6	50.5	143.1
1984	39.3	41.4	20.5	12.4	49.4	35.5	34.1	50.3	143.0
1985	39.1	41.2	20.8	12.5	48.4	35.2	33.9	50.5	143.3
1986	39.5	41.6	21.2	12.5	51.2	35.9	32.7	49.0	141.9
1987	39.0	41.0	21.2	12.3	48.9	35.4	32.7	49.1	142.0
1988	39.3	41.1	22.2	12.1	48.1	35.9	32.6	48.0	146.8
1989	38.1	39.8	21.3	11.7	43.8	35.2	33.1	46.7	142.2
				Changes in Rates					
1979 to 1989	**–19%**	**–21%**	**–23%**	**–27%**	**–30%**	**–18%**	**–20%**	**–21%**	**–8%**
1988 to 1989	**– 3%**	**– 3%**	**– 4%**	**– 3%**	**– 9%**	**– 2%**	**+ 2%**	**– 3%**	**–3%**
				1989 Population (millions)					
Total	**248.24**		**18.75**	**35.16**	**36.52**	**80.34**	**46.49**	**18.18**	**12.80**
Male	120.98		9.60	18.01	18.46	39.97	22.31	8.09	4.54
Female	127.26		9.15	17.15	18.06	40.37	24.18	10.09	8.26

Source: 1903 to 1932 based on National Center for Health Statistics data for registration states; 1933-1948 (5th Revn.), 1949-1963, 1965-1987 are NCHS totals. All other figures are National Safety Council estimates: 1989 preliminary, 1988 revised. See page 21 for comparability.

[a] Includes "age unknown." In 1987 these deaths numbered 127.

[b] In 1948, a revision was made in the International List of Causes of Death. The first figures for 1948 are comparable with those for earlier years, the second with those for later years.

[c] Rates are deaths per 100,000 resident population in each age group. The ALL AGES crude rates are based on U.S. Census Bureau figures. The index numbers (1912 = 100.0) are based on rates standardized for age (base 1940) to remove the influence of changes in age distribution between 1903 and 1989.

Principal Types of Accidental Deaths, 1903-1989

Year	Motor-Vehicle	Falls	Drowning[a]	Fires, Burns[b]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas
				DEATHS				
1903	(c)	(c)	9,200	(c)	(c)	2,500	(c)	(c)
1904	(c)	(c)	9,300	(c)	(c)	2,800	(c)	(c)
1905	(c)	(c)	9,300	(c)	(c)	2,000	(c)	(c)
1906	400	(c)	9,400	(c)	(c)	2,100	(c)	(c)
1907	700	(c)	9,000	(c)	(c)	1,700	(c)	(c)
1908	800	(c)	9,300	(c)	(c)	1,900	(c)	(c)
1909	1,300	(c)	8,500	(c)	(c)	1,600	(c)	(c)
1910	1,900	(c)	8,700	(c)	(c)	1,900	(c)	(c)
1911	2,300	(c)	9,000	(c)	(c)	2,100	(c)	(c)
1912	3,100	(c)	8,600	(c)	(c)	2,100	(c)	(c)
1913	4,200	15,100	10,300	8,900	(c)	2,400	3,200	(c)
1914	4,700	15,000	8,700	9,100	(c)	2,300	3,300	(c)
1915	6,600	15,000	8,600	8,400	(c)	2,100	2,800	(c)
1916	8,200	15,200	8,900	9,500	(c)	2,200	2,900	(c)
1917	10,200	15,200	7,600	10,800	(c)	2,300	2,800	(c)
1918	10,700	13,200	7,000	10,200	(c)	2,500	2,700	(c)
1919	11,200	11,900	9,100	9,100	(c)	2,800	3,100	(c)
1920	12,500	12,600	6,100	9,300	(c)	2,700	3,300	(c)
1921	13,900	12,300	7,800	7,500	(c)	2,800	2,900	(c)
1922	15,300	13,200	7,000	8,300	(c)	2,900	2,800	(c)
1923	18,400	14,100	6,800	9,100	(c)	2,900	2,800	2,700
1924	19,400	14,700	7,400	7,400	(c)	2,900	2,700	2,900
1925	21,900	15,500	7,300	8,600	(c)	2,800	2,700	2,800
1926	23,400	16,300	7,500	8,800	(c)	2,800	2,600	3,200
1927	25,800	16,500	8,100	8,200	(c)	3,000	2,600	2,700
1928	28,000	17,000	8,600	8,400	(c)	2,900	2,800	2,800
1929	31,200	17,700	7,600	8,200	(c)	3,200	2,600	2,800
1930	32,900	18,100	7,500	8,100	(c)	3,200	2,600	2,500
1931	33,700	18,100	7,600	7,100	(c)	3,100	2,600	2,100
1932	29,500	18,600	7,500	7,100	(c)	3,000	2,200	2,100
1933	31,363	18,962	7,158	6,781	(c)	3,014	2,135	1,633
1934	36,101	20,725	7,077	7,456	(c)	3,033	2,148	1,643
1935	36,369	21,378	6,744	7,253	(c)	2,799	2,163	1,654
1936	38,089	23,562	6,659	7,939	(c)	2,817	2,177	1,665
1937	39,643	22,544	7,085	7,214	(c)	2,576	2,190	1,675
1938	32,582	23,239	6,881	6,491	(c)	2,726	2,077	1,428
1939	32,386	23,427	6,413	6,675	(c)	2,618	1,963	1,440
1940	34,501	23,356	6,202	7,521	(c)	2,375	1,847	1,583
1941	39,969	22,764	6,389	6,922	(c)	2,396	1,731	1,464
1942	28,309	22,632	6,696	7,901	(c)	2,678	1,607	1,741
1943	23,823	24,701	7,115	8,726	921	2,282	1,745	2,014
1944	24,282	22,989	6,511	8,372	896	2,392	1,993	1,860
1945	28,076	23,847	6,624	7,949	897	2,385	1,987	2,120
1946	33,411	23,109	6,442	7,843	1,076	2,801	1,961	1,821
1947	32,697	24,529	6,885	8,033	1,206	2,439	1,865	1,865
1948 (5th Revn.)[d]	32,259	24,836	6,428	7,743	1,315	2,191	1,753	2,045
1948 (6th Revn.)[d]	32,259	22,000	6,500	6,800	1,299	2,330	1,600	2,020
1949	31,701	22,308	6,684	5,982	1,341	2,326	1,634	1,617
1950	34,763	20,783	6,131	6,405	1,350	2,174	1,584	1,769
1951	36,996	21,376	6,489	6,788	1,456	2,247	1,497	1,627
1952	37,794	20,945	6,601	6,922	1,434	2,210	1,440	1,397
1953	37,955	20,631	6,770	6,579	1,603	2,277	1,391	1,223
1954	35,586	19,771	6,334	6,083	1,627	2,271	1,339	1,223
1955	38,426	20,192	6,344	6,352	1,608	2,120	1,431	1,163
1956	39,628	20,282	6,263	6,405	1,760	2,202	1,422	1,213
1957	38,702	20,545	6,613	6,269	2,043	2,369	1,390	1,143
1958	36,981	18,248	6,582[e]	7,291[e]	2,191[e]	2,172	1,429	1,187
1959	37,910	18,774	6,434	6,898	2,189	2,258	1,661	1,141
1960	38,137	19,023	6,529	7,645	2,397	2,334	1,679	1,253
1961	38,091	18,691	6,525	7,102	2,499	2,204	1,804	1,192
1962	40,804	19,589	6,439	7,534	1,813	2,092	1,833	1,376
1963	43,564	19,335	6,347	8,172	1,949	2,263	2,061	1,489
1964	47,700	18,941	6,709	7,379	1,865	2,275	2,100	1,360
1965	49,163	19,984	6,799	7,347	1,836	2,344	2,110	1,526
1966	53,041	20,066	7,084	8,084	1,831	2,558	2,283	1,648

See source and footnotes on page 33.

Principal Types of Accidental Deaths, 1903-1989, Cont.

Year	Motor-Vehicle	Falls	Drowning[a]	Fires, Burns[b]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas
1967	52,924	20,120	7,076	7,423	1,980	2,896	2,506	1,574
1968	54,862	18,651	7,372[c]	7,335[c]	3,100[c]	2,394[c]	2,583	1,526
1969	55,791	17,827	7,699	7,163	3,712	2,309	2,967	1,549
1970	54,633	16,926	7,860	6,718	2,753	2,406	3,679	1,620
1971	54,381	16,755	7,396	6,776	2,877	2,360	3,710	1,646
1972	56,278	16,744	7,586	6,714	2,830	2,442	3,728	1,690
1973	55,511	16,506	8,725	6,503	3,013	2,618	3,683	1,652
1974	46,402	16,339	7,876	6,236	2,991	2,513	4,016	1,518
1975	45,853	14,896	8,000	6,071	3,106	2,380	4,694	1,577
1976	47,038	14,136	6,827	6,338	3,033	2,059	4,161	1,569
1977	49,510	13,773	7,126	6,357	3,037	1,982	3,374	1,596
1978	52,411	13,690	7,026	6,163	3,063	1,806	3,035	1,737
1979	53,524	13,216	6,872	5,991	3,243	2,004	3,165	1,472
1980	53,172	13,294	7,257	5,822	3,249	1,955	3,089	1,242
1981	51,385	12,628	6,277	5,697	3,331	1,871	3,243	1,280
1982	45,779	12,077	6,351	5,210	3,254	1,756	3,474	1,259
1983	44,452	12,024	6,353	5,028	3,387	1,695	3,382	1,251
1984	46,263	11,937	5,388	5,010	3,541	1,668	3,808	1,103
1985	45,901	12,001	5,316	4,938	3,551	1,649	4,091	1,079
1986	47,865	11,444	5,700	4,835	3,692	1,452	4,731	1,009
1987	48,290	11,733	5,100	4,710	3,688	1,440	4,415	900
1988	48,900	12,200	4,600	4,700	4,000	1,500	5,100	900
1989	46,900	12,400	4,600	4,400	3,900	1,600	5,600	900
Changes in Deaths								
1979 to 1989	**–12%**	**–6%**	**–33%**	**–27%**	**+20%**	**–20%**	**+77%**	**–39%**
1988 to 1989	**– 4%**	**+2%**	**0%**	**– 6%**	**– 3%**	**+ 7%**	**+10%**	**0%**
DEATH RATES per 100,000 Population								
1903	(c)	(c)	11.4	(c)	(c)	3.1	(c)	(c)
1904	(c)	(c)	11.3	(c)	(c)	3.4	(c)	(c)
1905	(c)	(c)	11.1	(c)	(c)	2.4	(c)	(c)
1906	0.5	(c)	11.0	(c)	(c)	2.4	(c)	(c)
1907	0.8	(c)	10.4	(c)	(c)	2.0	(c)	(c)
1908	0.9	(c)	10.5	(c)	(c)	2.1	(c)	(c)
1909	1.4	(c)	9.4	(c)	(c)	1.8	(c)	(c)
1910	2.0	(c)	9.4	(c)	(c)	2.1	(c)	(c)
1911	2.5	(c)	9.6	(c)	(c)	2.2	(c)	(c)
1912	3.3	(c)	9.0	(c)	(c)	2.2	(c)	(c)
1913	4.4	15.5	10.6	9.1	(c)	2.5	3.3	(c)
1914	4.8	15.1	8.8	9.1	(c)	2.3	3.3	(c)
1915	6.6	14.9	8.6	8.4	(c)	2.1	2.8	(c)
1916	8.1	14.9	8.7	9.3	(c)	2.2	2.8	(c)
1917	10.0	14.7	7.4	10.5	(c)	2.2	2.7	(c)
1918	10.3	12.8	6.8	9.9	(c)	2.4	2.6	(c)
1919	10.7	11.4	6.9	8.7	(c)	2.7	3.0	(c)
1920	11.7	11.8	5.7	8.7	(c)	2.5	3.1	(c)
1921	12.9	11.3	7.2	6.9	(c)	2.6	2.7	(c)
1922	13.9	12.0	6.4	7.5	(c)	2.6	2.5	(c)
1923	16.5	12.6	6.1	8.1	(c)	2.6	2.5	2.4
1924	17.1	12.9	6.5	8.4	(c)	2.5	2.4	2.5
1925	19.1	13.4	6.3	7.4	(c)	2.4	2.3	2.4
1926	20.1	13.9	6.4	7.5	(c)	2.4	2.2	2.7
1927	21.8	13.9	6.8	6.9	(c)	2.5	2.2	2.3
1928	23.4	14.1	7.1	7.0	(c)	2.4	2.3	2.3
1929	25.7	14.5	6.2	6.7	(c)	2.6	2.1	2.3
1930	26.7	14.7	6.1	6.6	(c)	2.6	2.1	2.0
1931	27.2	14.6	6.1	5.7	(c)	2.5	2.1	1.7
1932	23.6	14.9	6.0	5.7	(c)	2.4	1.8	1.7
1933	25.0	15.1	5.7	5.4	(c)	2.4	1.7	1.3
1934	28.6	16.4	5.6	5.9	(c)	2.4	1.7	1.3
1935	28.6	16.8	5.3	5.7	(c)	2.2	1.7	1.3
1936	29.7	18.4	5.2	6.2	(c)	2.2	1.7	1.3
1937	30.8	17.5	5.5	5.6	(c)	2.0	1.7	1.3
1938	25.1	17.9	5.3	5.0	(c)	2.1	1.6	1.1
1939	24.7	17.9	4.9	5.1	(c)	2.0	1.5	1.1
1940	26.1	17.7	4.7	5.7	(c)	1.8	1.4	1.2

See source and footnotes on page 33.

Principal Types of Accidental Deaths, 1903-1989, Cont.

Year	Motor-Vehicle	Falls	Drowning[a]	Fires, Burns[b]	Ingest. of Food, Object	Fire-arms	Poison (solid, liquid)	Poison by Gas
1941	30.0	17.1	4.8	5.2	([c])	1.8	1.3	1.1
1942	21.1	16.9	5.0	5.9	([c])	2.0	1.2	1.3
1943	17.8	18.4	5.3	6.5	0.7	1.7	1.3	1.5
1944	18.3	17.3	4.9	6.3	0.7	1.8	1.5	1.4
1945	21.2	18.0	5.0	6.0	0.7	1.8	1.5	1.6
1946	23.9	16.5	4.6	5.6	0.8	2.0	1.4	1.3
1947	22.8	17.1	4.8	5.6	0.8	1.7	1.3	1.3
1948 (5th Revn.)[d]	22.1	17.0	4.4	5.3	0.9	1.5	1.2	1.4
1948 (6th Revn.)[d]	22.1	15.1	4.5	4.7	0.9	1.6	1.1	1.4
1949	21.3	15.0	4.5	4.0	0.9	1.6	1.1	1.1
1950	23.0	13.7	4.1	4.2	0.9	1.4	1.1	1.2
1951	24.1	13.9	4.2	4.4	1.0	1.5	1.0	1.1
1952	24.3	13.5	4.2	4.5	0.9	1.4	0.9	0.9
1953	24.0	13.0	4.3	4.2	1.0	1.4	0.9	0.8
1954	22.1	12.3	3.9	3.8	1.0	1.4	0.8	0.8
1955	23.4	12.3	3.9	3.9	1.0	1.3	0.9	0.7
1956	23.7	12.1	3.7	3.8	1.1	1.3	0.8	0.7
1957	22.7	12.1	3.9	3.7	1.2	1.4	0.8	0.7
1958	21.3	10.5	3.8[e]	4.2[e]	1.3[e]	1.3	0.8	0.7
1959	21.5	10.6	3.7	3.9	1.2	1.3	0.9	0.7
1960	21.2	10.6	3.6	4.3	1.3	1.3	0.9	0.7
1961	20.8	10.2	3.6	3.9	1.4	1.2	1.0	0.7
1962	22.0	10.5	3.5	4.1	1.0	1.1	1.0	0.7
1963	23.1	10.3	3.4	4.3	1.0	1.2	1.1	0.8
1964	25.0	9.9	3.5	3.9	1.0	1.2	1.1	0.7
1965	25.4	10.3	3.5	3.8	1.0	1.2	1.1	0.8
1966	27.1	10.3	3.6	4.8	0.9	1.3	1.2	0.8
1967	26.8	10.2	3.6	3.8	1.0	1.5	1.3	0.8
1968	27.5	9.4	3.7[e]	3.7[e]	1.6[e]	1.2[e]	1.3	0.8
1969	27.7	8.9	3.8	3.6	1.8	1.2	1.5	0.8
1970	26.8	8.3	3.9	3.3	1.4	1.2	1.8	0.8
1971	26.3	8.1	3.6	3.3	1.4	1.1	1.8	0.8
1972	26.9	8.0	3.6	3.2	1.4	1.2	1.8	0.8
1973	26.3	7.8	4.1	3.1	1.4	1.2	1.7	0.8
1974	21.8	7.7	3.7	2.9	1.4	1.2	1.8	0.7
1975	21.3	6.9	3.7	2.8	1.4	1.1	2.2	0.7
1976	21.6	6.5	3.1	2.9	1.4	0.9	1.9	0.7
1977	22.5	6.3	3.2	2.9	1.4	0.9	1.5	0.7
1978	23.6	6.2	3.2	2.8	1.4	0.8	1.4	0.8
1979	23.8	5.9	3.1	2.7	1.4	0.9	1.4	0.7
1980	23.4	5.9	3.2	2.6	1.4	0.9	1.4	0.5
1981	22.4	5.5	2.7	2.5	1.5	0.8	1.4	0.6
1982	19.7	5.2	2.7	2.2	1.4	0.8	1.4	0.5
1983	19.0	5.1	2.7	2.1	1.4	0.7	1.4	0.5
1984	19.6	5.0	2.3	2.1	1.5	0.7	1.6	0.5
1985	19.2	5.0	2.2	2.1	1.5	0.7	1.7	0.5
1986	19.9	4.7	2.4	2.0	1.5	0.6	2.0	0.4
1987	19.8	4.8	2.1	1.9	1.5	0.6	1.8	0.4
1988	19.9	5.0	1.9	1.9	1.6	0.6	2.1	0.4
1989	18.9	5.0	1.9	1.8	1.6	0.6	2.3	0.4
Changes in Rates								
1979 to 1989	**−21%**	**−15%**	**−39%**	**−33%**	**+14%**	**−33%**	**+64%**	**−43%**
1988 to 1989	**− 5%**	**0%**	**0%**	**− 5%**	**0%**	**0%**	**+10%**	**0%**

Source: National Center for Health Statistics and National Safety Council. See page 21 for comparability.

[a] Includes drowning in water transport accidents.

[b] Includes burns by fire, and deaths resulting from conflagration regardless of nature of injury.

[c] Comparable data not available.

[d] In 1948, a revision was made in the International List of Causes of Death. The first figures for 1948 are comparable with those for earlier years, the second with those for later years.

[e] Data are not comparable to previous years shown due to classification changes in 1958 and 1968.

WORK ACCIDENTS, 1989

Between 1912 and 1989, accidental work deaths per 100,000 population were reduced 81 per cent, from 21 to 4. In 1912, an estimated 18,000 to 21,000 workers' lives were lost. In 1989, in a work force more than triple in size and producing 11 times the goods and services, there were only 10,400 work deaths.

	Workers[a] (000)	Deaths	Death Rates[b]	Disabling Injuries[a]
All Industries . . .	**116,700**	**10,400[c]**	**9**	**1,700,000**
Agriculture[d]	**3,200**	**1,300**	**40[e]**	**120,000**
Mining, quarrying[d] . . .	**700**	**300**	**43**	**30,000**
Construction	**6,500**	**2,100**	**32**	**190,000**
Manufacturing	**19,500**	**1,100**	**6**	**340,000**
Transportation and public utilities	**5,900**	**1,400**	**24**	**140,000**
Trade[d]	**27,400**	**1,100**	**4**	**340,000**
Services[d]	**36,200**	**1,500**	**4**	**300,000**
Government	**17,300**	**1,600**	**9**	**240,000**

Source: National Safety Council estimates (rounded) based on data from the National Center for Health Statistics, state vital statistics departments (see page 16), and state industrial commissions. Numbers of workers are based on Bureau of Labor Statistics data and include persons aged 14 and over.

[a] See definitions on page 105.

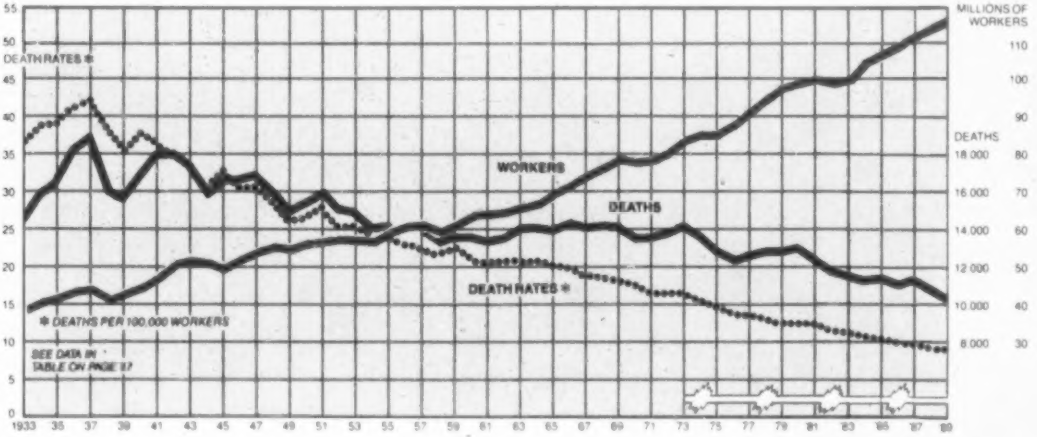
[b] Deaths per 100,000 workers in each group.

[c] About 3,900 of the deaths and 200,000 of the injuries involved motor vehicles.

[d] Agriculture includes forestry and fishing; see also page 100. Mining and quarrying includes oil and gas extraction (preliminary MSHA reports indicate 115 deaths in coal, metal, and nonmetal mining in 1989). Trade includes wholesale and retail trade. Services includes finance, insurance and real estate.

[e] Agriculture rate excludes deaths of persons under 14 years of age. Rates for other industry divisions do not require this adjustment. Deaths of persons under 14 are included in the agriculture death total.

Workers, Deaths and Death Rates



Work accident costs

The true cost to the nation, to employers, and to individuals of work related deaths and injuries is much greater than the cost of workers' compensation insurance alone. The figures presented below show the National Safety Council's estimates of the total costs of occupational deaths and injuries. Uninsured costs are estimated, conservatively, to be equal to insured costs. The Council recommends, however, that each organization establish its own ratio of uninsured to insured costs through a study of its own experience. Guidance for such a study is contained in the Council's *Accident Prevention Manual.*

TOTAL COST IN 1989 .... **$48.5 billion**

Includes wage losses of $8.3 billion, insurance administrative costs of $6.1 billion, and medical costs of $8.1 billion. Includes uninsured costs of $22.5 billion such as the money value of time lost by workers other than those with disabling injuries, who are directly or indirectly involved in accidents, and the cost of the time required to investigate accidents, write up accident reports, etc. Also includes fire losses of $3.5 billion, but excludes the cost of other property damage.

Cost per Worker **$420**

This figure indicates the value of goods or services each worker must produce to offset the cost of work injuries. It is *not* the average cost of a work injury.

Cost per Death **$610,000**

Cost per Disabling Injury **$18,000**

These figures include estimates of wage losses, medical expenses, insurance administration costs, and uninsured costs, and exclude any property damage costs.

Time lost because of work injuries

DAYS LOST

TOTAL TIME LOST IN 1989 .... **75,000,000**

Due to Accidents in 1989 .... **35,000,000**

Includes primarily the actual time lost during the year from disabling injuries, except that it does not include time lost on the day of the injury or time required for further medical treatment or check-up following the injured person's return to work.

Fatalities are included at an average loss of 150 days per case, and permanent impairments are included at actual days lost plus an allowance for lost efficiency resulting from the impairment.

Not included is time lost by persons with nondisabling injuries or other persons directly or indirectly involved in accidents.

Due to Accidents in Prior Years **40,000,000**

This is an indicator of the productive time lost in 1989 due to permanently disabling injuries that occurred in prior years.

TIME LOSS IN FUTURE YEARS FROM 1989 ACCIDENTS **90,000,000**

Includes time lost in future years due to on-the-job deaths and permanently disabling injuries that occurred in 1989.

Deaths in work accidents

Of the 10,400 work deaths in 1989, about 51 per cent were to those aged 25 to 44 years. By type of accident, more than one third of all fatalities involved motor-vehicle accidents. Falls were the next highest type with about 13 per cent.

The table below shows the number of work deaths by age in 1989 and the per cent distribution by type of accident for the various age groups.

Work Deaths by Type of Accident and Age, 1987 and 1989

Type of Accident	All Ages	Age					
		5-14	15-24	25-44	45-64	65-74	75 & Over
All Types	*10,400*	*100*	*1,400*	*5,300*	*2,700*	*600*	*300*
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Motor-vehicle	37.2	0.0	50.0	38.0	36.7	25.0	0.0
Falls	12.5	6.0	7.8	9.1	14.2	20.1	52.5
Electric current	3.7	4.0	5.9	4.3	2.5	0.6	0.3
Drowning	3.2	0.0	4.8	3.6	2.3	1.3	1.8
Fires, burns	3.1	8.0	2.7	2.9	2.7	6.1	4.3
Air transport	3.0	0.0	0.7	4.5	3.2	0.5	0.0
Poison (solid, liquid)	2.7	0.0	1.1	4.2	1.9	1.5	0.0
Water transport	1.6	0.0	2.2	2.0	1.2	0.4	0.3
Poison (gas, vapor)	1.4	0.0	1.8	1.5	1.2	0.9	0.3
Other[a]	31.6	82.0	23.0	29.9	34.1	43.6	40.5

Source: National Safety Council estimates. All types totals are 1989 estimates. Per cent distribution based on 1987 data (latest year available).

[a] Principal types include machinery, struck by falling object, railway, and mechanical suffocation.

Work injuries by type of accident

About 31 per cent of all disabling work injuries result from overexertions, according to data from the Bureau of Labor Statistics 1986 Supplementary Data System (SDS) file. Injuries involving being struck by or struck against an object were the next most frequent with about 24 per cent. Per cent distributions by type of accident for major industry divisions are shown below.

The SDS file used in the tabulations includes only workers' compensation cases that involved disability from 23 states in 1986.

Work Injuries Involving Disability by Type of Accident and Industry Division, 1986

Type of Accident	All Industries	Agriculture[a,b]	Mining[b]	Construction	Manufacturing	Trans. and Pub. Util.	Trade[b]	Services[b]	Public Sector
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Overexertion	30.9	24.3	22.7	25.4	33.9	30.6	30.5	34.4	28.1
Struck by or struck against	24.0	29.1	27.5	28.0	24.9	18.3	27.3	19.8	19.8
Falls	17.1	18.8	14.9	22.5	12.1	19.3	17.1	19.0	18.4
Bodily reaction	7.2	6.3	6.0	6.1	6.4	8.4	6.4	7.8	10.1
Caught in or between	5.6	6.5	9.6	4.2	9.1	4.7	4.8	4.0	3.3
Motor-vehicle accident	3.6	3.6	5.2	2.4	1.5	10.4	3.0	3.4	6.0
Contact with radiation, caustics, etc	3.2	4.5	6.7	2.4	3.6	1.9	1.8	3.8	4.4
Rubbed or abraded	2.2	2.7	2.0	3.8	2.6	1.4	1.9	1.7	1.7
Contact with temperature extremes	2.1	0.9	1.9	1.8	1.7	0.8	3.8	1.6	1.5
Other, nonclassifiable	4.1	3.3	3.5	3.4	4.2	4.2	3.4	4.5	6.7

Source: Bureau of Labor Statistics Supplementary Data System, based on 1,178,533 cases involving disability from 23 states, 1986.

[a] Excludes farms with less than 11 employees.

[b] Agriculture includes forestry and fishing; mining includes quarrying and oil and gas extraction; trade includes wholesale and retail; services includes finance, insurance, and real estate.

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Work Accidental Deaths and Death Rates, All Industries, 1933-1989

Year	Work Deaths	Work M-V[a]	Workers[b] (000)	Death Rate[c]
1933	14,500	(d)	39,000	37
1938	16,000	(d)	42,100	38
1943	17,500	(d)	52,200	34
1945	16,500	(d)	50,200	33
1946	16,500	(d)	52,400	31
1947	17,000	2,500	54,900	31
1948	16,000	2,100	56,000	29
1949	15,000	2,200	55,200	27
1950	15,500	2,700	56,400	27
1951	16,000	2,800	57,450	28
1952	15,000	2,800	57,800	26
1953	15,000	3,100	58,050	26
1954	14,000	2,800	57,500	24
1955	14,200	3,000	59,400	24
1956	14,300	3,000	61,100	23
1957	14,200	2,900	61,300	23
1958	13,300	2,600	59,900	22
1959	13,800	2,800	61,300	23
1960	13,800	2,800	64,400	21
1961	13,500	2,600	64,500	21
1962	13,700	2,700	65,200	21
1963	14,200	3,000	66,200	21
1964	14,200	3,100	67,600	21
1965	14,100	3,000	69,700	20
1966	14,500	3,200	72,600	20
1967	14,200	3,200	74,700	19
1968	14,300	3,600	76,900	19
1969	14,300	3,600	79,000	18
1970	13,800	3,700	77,700	18
1971	13,700	4,200	78,500	17
1972	14,000	4,300	81,300	17
1973	14,300	4,500	84,300	17
1974	13,500	4,000	86,200	16
1975	13,000	3,900	85,200	15
1976	12,500	4,100	88,100	14
1977	12,900	4,300	91,500	14
1978	13,100	4,500	95,500	14
1979	13,000	4,500	98,300	13
1980	13,200	4,500	98,800	13
1981	12,500	4,500	99,800	13
1982	11,900	4,100	98,800	12
1983	11,700	4,100	100,100	12
1984	11,500	4,200	104,300	11
1985	11,500	4,100	106,400	11
1986	11,100	3,900	108,900	10
1987	11,300	4,200	111,700	10
1988	10,800	4,200	114,300	9
1989	10,400	3,900	116,700	9

Source: National Safety Council estimates (1987, 1988 revised; 1989 preliminary) based on data from the National Center for Health Statistics, state departments of health, and state industrial commissions; numbers of workers are based on Bureau of Labor Statistics data.

[a] Work deaths in motor-vehicle accidents. These deaths are included in the "Work Deaths" column.

[b] Workers are all persons gainfully employed, including owners, managers, other paid employees, the self-employed, and unpaid family workers, but excluding domestic servants. Due to changes in estimating procedures, the numbers of workers for 1970 and later years have been revised and are not comparable to those for earlier years.

[c] Deaths per 100,000 workers.

[d] Comparable figures not available.

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Work Deaths and Death Rates by Industry Division, 1980-1989

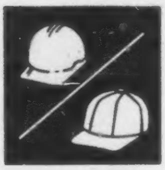
Year	Agriculture[a]	Mining, Quarrying[a]	Construction	Manufacturing	Trans. and Pub. Util.	Trade[a]	Services[a]	Government
				DEATHS				
1980	2,000	500	2,500	1,700	1,600	1,400	1,800	1,700
1981	1,900	600	2,300	1,500	1,700	1,200	1,700	1,600
1982	1,800	600	2,100	1,100	1,500	1,300	1,800	1,700
1983	1,300	500	2,100	1,200	1,500	1,200	1,800	1,600
1984	1,700	500	2,200	1,100	1,600	1,200	1,800	1,400
1985	1,600	400	2,400	1,200	1,500	1,300	1,800	1,300
1986	1,800	300	2,300	1,000	1,600	1,100	1,600	1,400
1987	1,700	300	2,100	1,000	1,500	1,200	2,000	1,500
1988	1,500	300	2,200	1,100	1,500	1,100	1,500	1,600
1989	1,300	300	2,100	1,100	1,400	1,100	1,500	1,600
				DEATH RATES[b]				
1980	56	50	45	8	30	6	7	11
1981	54	55	42	7	31	5	7	10
1982	52	50	40	6	28	6	7	11
1983	52	50	39	6	28	5	7	10
1984	49	50	39	6	29	5	7	9
1985	49	40	40	6	27	5	6	8
1986	55	38	37	5	29	4	5	8
1987	53	38	33	5	26	5	6	9
1988	48	38	34	6	26	4	4	9
1989	40	43	32	6	24	4	4	9

Source: National Safety Council estimates (1987, 1988 revised; 1989 preliminary) based on data from the National Center for Health Statistics, state departments of health, state industrial commissions, and the Bureau of Labor Statistics.

[a] Agriculture includes forestry and fishing; see also page 100. Mining and quarrying includes oil and gas extraction. Trade includes wholesale and retail trade. Services includes finance, insurance and real estate.

[b] Deaths per 100,000 workers in each industry group. Agriculture rate excludes deaths of persons under 14 years of age. Rates for other industries do not require this adjustment. Deaths of persons under 14 are included in the agriculture death total.

Worker deaths and injuries on and off the job



Three out of four deaths, and more than half of the injuries suffered by workers in 1989 occurred off the job. The ratios of off-the-job deaths and injuries to on-the-job were 3.5 to 1 and 1.6 to 1, respectively. Production time lost due to off-the-job accidents totaled about 60,000,000 days in 1989, compared with 35,000,000 days lost by workers injured on the job. Production time lost in future years due to off-the-job accidents in 1989 will total an estimated 280,000,000 days, more than three times the 90,000,000 days lost in future years from on-the-job accidents. Off-the-job accidents to workers cost the nation at least $45.8 billion in 1989.

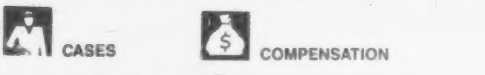
Procedures for allocating the time spent on and off the job were revised for the 1990 edition. Death and injury rates in the table below are not comparable to rate estimates prior to this edition.

Place	Deaths		Disabling Injuries 1989	1989 Rates[a]	
	1989	1988		Deaths	Injuries
On and Off the Job	**47,300**	**47,800**	**4,500,000**	**.07**	**6.5**
On the Job	**10,400**	**10,800**	**1,700,000**	**.04**	**6.8**
Off the Job	**36,900**	**37,000**	**2,800,000**	**.08**	**6.3**
Motor-vehicle	23,300	24,100	900,000	.50	19.3
Public nonmotor-vehicle	6,800	6,400	900,000	.09	12.4
Home	6,800	6,500	1,000,000	.02	3.1

Source: National Safety Council estimates.

[a] Per 1,000,000 hours exposure, by place.

Part of body injured in work accidents



Source: State Labor Departments, 1985-1987; cases—21 States, compensation—12 States.

[a] Includes multiple or NEC extremity injuries amounting to about 1 per cent of the total cases and compensation.

Disabling work injuries in the entire nation totaled approximately 1,700,000 in 1989. Of these, about 10,400 were fatal and 60,000 resulted in some permanent impairment.

Injuries to the back occurred most frequently, followed by thumb and finger injuries and leg injuries, according to state labor department reports. See pages 35 and 43 for other compensation figures.

Eyes	**70,000**
Head (except eyes)	**70,000**
Neck	**30,000**
Arms[a]	**170,000**
Hands	**90,000**
Fingers	**220,000**
Back	**380,000**
Trunk	**150,000**
Legs[a]	**220,000**
Feet	**70,000**
Toes	**30,000**
Body Systems	**30,000**
Multiple	**170,000**

Occupational fatality estimates

There are three commonly cited estimates of occupational fatalities. Each is quite different from the others not only in magnitude but also in scope and coverage. There are significant differences not only in what is counted, but also in the population covered, data sources, and methods. To use them properly, it is necessary to understand what they mean and how they were made.

National Safety Council[a]. The Council's estimate, 10,400 for 1989, covers unintentional injury deaths (ICD underlying cause of death codes E800–E949) of persons in the public and private civilian work force, age 14 and over, who were wage or salary workers (excluding private household workers), self-employed, or unpaid family workers. The non-motor-vehicle portion of the most recent (1987) National Center for Health Statistics (NCHS) death certificate tabulation by external cause and age group was apportioned into three major classes—work, home, and public—using factors determined from special studies. The work-motor-vehicle duplication was estimated from occupant deaths by type of vehicle, as reported by state traffic authorities, and added to the non-motor-vehicle work deaths to obtain the total. Because the NCHS tabulations were for 1987, state vital statistics and workers' compensation data were used to bring the estimates up to the current year using the link relative technique.

Bureau of Labor Statistics[b]. The BLS estimate, 3,300 for 1988, covers deaths due to injuries and illnesses that result from a work accident or from an exposure in the work environment in private sector employers with 11 or more employees (about two thirds of the total workforce). The estimate was obtained through an annual statistical survey of about 280,000 establishments stratified by industry and employment size category. The relative standard error of the fatality estimate is 7 per cent.

National Institute for Occupational Safety and Health[c]. The NIOSH estimate, about 6,400 in 1985, covers traumatic injuries (intentional and unintentional) of persons 16 years of age and older. It was made by counting death certificates obtained directly from the states using three criteria: (a) injury as an immediate, underlying or contributing cause of death (ICD codes E800–E999), (b) 16 years of age or older, and (c) a positive response to the "injury at work" item on the death certificate.

Discussion. Reconciliation of these three estimates involves adjusting for differences in definitions, coverage, sources, and methods. More fundamentally, however, all the estimates depend on the accuracy of the underlying record keeping systems. Considerable work is needed to improve these systems.

The Council and NIOSH estimates rely on the accuracy with which the death certificate is completed. It is well known that not all work-related fatalities can be identified with death certificates alone, or even in combination with workers' compensation reports[d]. The NIOSH estimate is probably understated because of death certificates with the "injury at work" item left blank or where the work association was missed by the certifier and the item was marked "no."

The BLS estimate relies on the accuracy of employers' records of work-related deaths and, especially in the case of occupational illnesses, the employer's ability to recognize the work relationship. Furthermore, "because fatalities are difficult to measure in an establishment survey, BLS believes the count significantly understates the work-related fatalities for the year."[b]

[a] National Safety Council Statistics Department. (1982). *Documentation of National Safety Council statistics department estimating procedures for motor-vehicle, work, home, and public deaths and death rates.* Chicago: Author.

[b] Bureau of Labor Statistics. (November 15, 1989). *BLS reports on survey of occupational injuries and illnesses in 1988.* (News Release USDL-89-548). Washington, DC: U.S. Department of Labor.

[c] National Institute for Occupational Safety and Health. (March 1989 Revised). *National traumatic occupational fatalities, 1980-1985.* Morgantown, W. V.: Author.

[d] Baker, S.P., Samkoff, J.S., Fisher, R.S., & Van Buren, C.B. (1982). Fatal occupational injuries. *The Journal of the American Medical Association, 248*(6), 692-697.

Chemical burn injuries

Of the major industry divisions, workers in manufacturing suffer the greatest number of chemical burns, about one third of the total, according to a recent Bureau of Labor Statistics study of approximately 800 chemical burn cases filed as workers' compensation claims in May 1985[a]. The next highest industry divisions were services (19 per cent), retail trade (14 per cent), and construction (12 per cent). More than four out of five injuries were to males, with persons less than 35 years old making up about 72 per cent of the total.

Almost half of the cases involved the eye. Acids and alkalies were the most common source of injury, each representing about one fifth of the total. Soaps, detergents, and cleaning compounds accounted for about 14 per cent of the cases, and solvents and degreasers (including paint thinners and removers and turpentine) another 9 per cent. Specific chemicals most often involved were: calcium hydroxide, found in plaster, mortar, and cement (9 per cent); sodium or potassium hydroxide, found in drain cleaners and other cleaning solutions (9 per cent); and sulfuric acid, including battery acid, which is frequently used by motor vehicle and heavy equipment mechanics (8 per cent). Over 40 per cent of the injuries occurred while cleaning equipment, tools or vehicles.

Most workers were injured despite being familiar with the chemicals and being close to emergency treatment. About 58 per cent of those injured reported working with or near the chemicals daily or almost every day, although only 39 per cent reported receiving written or printed instructions from their employer on safe work practices for handling chemicals. Almost four workers out of five said emergency eyewashes, deluge showers, or some other type of emergency treatment was available. For those workers with emergency treatment available, over 70 per cent reported that the treatment facilities were within 50 feet and about 84 per cent made use of such treatment.

Two thirds of the workers wore some type of personal protective equipment, most often gloves (43 per cent), boots (34 per cent), and glasses (18 per cent). However, only 31 per cent reported that the equipment was chemical resistant, and three fourths of the workers reported that the protective equipment did not cover the burn area. For those with the burn area not covered, reasons most often given were that they did not think personal protective equipment was needed (33 per cent), or that it had not been provided by the employer (19 per cent). Over two thirds of all workers reported that their employer paid for personal protective equipment, but about the same proportion reported not receiving any information on wearing chemical-resistant equipment.

Of particular concern are the 26 per cent of workers who were burned despite having the burn area covered by personal protective equipment. For this group, over half reported that their equipment was identified as chemical resistant. Four out of five workers reported that the chemical or substance passed under or around the equipment. Reasons most often given for why the equipment failed were that it was not designed to protect against chemical burns (27 per cent), was in bad condition (22 per cent), did not fit properly (15 per cent), or was the wrong style (12 per cent). More than one fourth of these workers felt that the personal protective equipment actually made the burn more serious, yet wearing chemical-resistant protective equipment was the action, method, or procedure most often named by workers to prevent these accidents. Other recommendations included using safer work procedures on the workers' part and having the company enforce safe work procedures.

About 55 per cent of the cases resulted in one or more days away from work, with a mean of 7 days for those cases. About 7 per cent of the injuries resulted in hospitalization, with a mean length of 6 nights.

[a] U.S. Bureau of Labor Statistics. *Chemical Burn Injuries (Bulletin 2353).* October 1989. Washington, DC: U.S. Government Printing Office.

Heat burn injuries

Workers in manufacturing suffer the greatest number of heat burn injuries, about 40 per cent of the total, according to a recent Bureau of Labor Statistics study of over 1,300 heat burn cases filed as workers' compensation claims in May 1985[a]. Workers in construction had the next highest proportion, 24 per cent. Special trade contractors and primary metals were the specific industries most often involved. Specifically excluded from the study were injured workers in firefighting, food preparation and related jobs such as fire inspectors, bartenders, cooks, bakers, waiters, and waitresses.

By occupation of worker, those most often involved were construction trades, except supervisors (16 per cent), mechanics, except supervisors (13 per cent), machine operators (11 per cent), and welders and cutters (8 per cent). About four out of five of the injuries were to males, with persons less than 35 years old making up 59 per cent of the total.

More than 40 per cent of the injuries were to the upper extremities, although almost one fourth of the workers reported multiple parts of the body involved. Injuries were most often caused by flame (including fire and smoke), molten metal, petroleum asphalts, steam, or water, and resulted in 2nd or 3rd degree burns in over 85 per cent of the cases. The most common activities at the time of injury were operating welding or cutting torches or equipment (18 per cent), and lifting, carrying, moving or pouring tar or asphalt (12 per cent). Most of the workers were familiar with these activities, over half performing them daily or almost daily, and 86 per cent reported being aware before the accident that the materials were hot or could cause burns.

More than half of the workers said the employer did not have a policy regarding personal protective equipment or that they did not know if there was such a policy. Nevertheless, two thirds of the workers wore some type of equipment, most often steel-toed shoes (36 per cent), glasses (26 per cent), hard hats (25 per cent), and leather gloves (23 per cent). Only 29 per cent reported that the equipment was resistant to heat burns, however, and three fourths of the workers reported that it did not cover the burn area. For those with the burn area not covered, reasons most often given were that they did not think the personal protective equipment was needed (25 per cent), had no explanation (22 per cent), or that personal protective equipment was not provided by the employer (14 per cent). Less than half of the workers reported that the employer paid for the personal protective equipment, and about the same number reported receiving information on wearing personal protective equipment to prevent burns.

Of particular concern are the 25 per cent of workers who were burned despite having the burn area covered by personal protective equipment. For this group, about half reported that their equipment was identified as resistant to heat burns, with almost all of these workers saying that the burn went under, around or through the personal protective equipment. Although 11 per cent of these workers felt that the equipment made the burn more serious, wearing personal protective equipment was named by 22 per cent as an action that could have prevented the accident. Other recommendations most often named were using safer work procedures, more or better safety features on machines, and having the company enforce safe work practices. About one fifth of the workers felt that the accident could not have been prevented.

Worksite or other conditions most often named as contributing to the accident were working in a limited space (18 per cent), working too fast (17 per cent), carelessness (13 per cent), limited area to escape (10 per cent), and using tools or equipment that were in bad condition (10 per cent). About 72 per cent of the cases resulted in one or more days away from work, and about 17 per cent resulted in hospitalization.

[a] U.S. Bureau of Labor Statistics. *Heat Burn Injuries (preliminary report).* December 1989. Washington, DC: Author.

Occupational motor-vehicle injuries

Motor vehicles are the leading cause of work deaths in the U.S. accounting for 3,900 deaths in 1989, about 38 per cent of all work deaths. Disabling injuries in work motor-vehicle accidents totaled 200,000, and costs to the nation of these accidents were estimated at $17 billion in 1989. It is generally believed that employers pay the overwhelming majority of these costs, although further research is needed to determine the exact proportion.

Data from the 1983 Bureau of Labor Statistics Supplementary Data System file show that motor-vehicle accidents in which the injured person was an occupant of a highway motor vehicle represent about 2.6 per cent of all closed workers' compensation cases in the reporting states. Per cent distributions of major variables for these cases are shown below. Males are involved in about 85 per cent of the cases, and about half of the total are under 35 years of age. About one third of the cases involve permanent disability, disfigurement, or fatality.

Multiple parts of the body are most often injured, with strains and sprains being the most common injury. Truck drivers are the leading occupation, involved in almost one third of the injuries, followed by bus drivers, police and detectives, delivery and route drivers, and taxi drivers and chauffeurs.

Information not shown below indicates that for certain occupations, motor-vehicle accidents represent a far greater proportion of total closed cases than the average of 2.6 per cent for all occupations. About 36 per cent of all cases for taxi drivers and chauffeurs involved motor-vehicle accidents. Other occupations for which motor-vehicles represented at least one fourth of all closed cases included sales representatives in manufacturing industries (26 per cent), editors and reporters (26 per cent), and messengers and office helpers (25 per cent).

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Motor-Vehicle-Related Workers' Compensation Cases, 1983

Category	%	Category	%
Sex:		**Nature of Injury:**	
Male	85	Strain, sprain	35
Female	15	Multiple injuries	27
Age:		Fractures	12
Under 20	3	Contusion, crushing, bruise	12
20-24 years	13	Cut, laceration, puncture	5
25-34 years	34	Concussion	2
35-44 years	24	Dislocation	2
45-54 years	15	Other, unspecified	5
55 years and over	9		
Extent of Disability:		**Industry Division:**	
Temporary total	68	Transportation and public utilities	33
Permanent partial	19	Services	15
Permanent total	([a])	Public administration (government)	12
Other (e.g. disfigurement)	10	Manufacturing	11
Fatal	3	Wholesale trade	9
Type of Accident:		Construction	8
Collision, sideswipe, both vehicles moving	31	Retail trade	7
Collision, sideswipe with standing vehicle or fixed object	8	Finance, insurance, real estate	3
Collision, sideswipe while in standing vehicle	7	Agriculture, forestry, fishing	2
Noncollision	36	Mining, quarrying	1
Other, unspecified	18	**Occupation:**	
Part of Body:		Truck drivers	31
Multiple	44	Bus drivers	7
Back	14	Police, detectives	7
Neck	9	Delivery, route drivers	5
Head	8	Taxi drivers, chauffeurs	4
Lower extremity	7	Managers, administrators, nec.[b]	3
Upper extremity	6	Salespersons, sales clerks	3
Other, unspecified	12	Contruction laborers	2
		Other, unspecified	38

Source: National Safety Council tabulations of Bureau of Labor Statistics Supplementary Data System, based on 8,778 closed cases from 9 states, 1983. Figures may not add to 100 per cent due to rounding.

[a] Less than 0.5 per cent.

[b] NEC means not elsewhere classified.

Workers' Compensation Cases

According to the Social Security Administration, an estimated $27,350 million was paid out under workers' compensation in 1987, an increase of 11 per cent from 1986. Of this total, $17,450 million was for income benefits and $9,940 million was for medical costs.

Both income benefits and medical payments increased in 1987. Black lung payments decreased by about 2.4 per cent. The 1987 total of approximately 88.4 million workers covered by workers' compensation increased by about 2.4 million from 1986. About 87 per cent of all wage and salary workers were covered in 1987.

The table below shows the trend in the number of compensated or reported cases in each reporting state or province. Due to the differences in population, industries, and coverage of compensation laws, comparison between states should not be made.

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State or Province	Deaths[a]			Total Cases[a]			1987 Compensation Paid ($ 000)
	1989	1988	1987	1989	1988	1987	
Alabama	180	165	128	40,863	41,394	39,192	273,765
Alaska	32	36	45	31,742	25,990	24,123	139,367
Arizona	86	81	89	166,908	...	140,159	222,355
Arkansas	125	116	112	19,706	18,250	17,735	160,019
California	...	218	339	...	437,293	400,820	4,250,941
Connecticut	57	58	109	50,153	51.032	42,289	433,535
Florida	...	173	179	...	86,742	84,359	1,178,113
Georgia	228	226	297	293,744	306,663	295,752	510,062
Hawaii	...	46	45	...	50,101	43,108	137,028
Idaho	47	30	46	41,617	38,049	35,770	70,343
Indiana	93	105	114	87,249	74,341	70,674	201,532
Iowa	...	...	89	...	...	28,930	140,734
Kansas	69	96	88	72,674	69,933	67,386	174,953
Kentucky	...	104	136	...	41,119	39,463	274,434
Maryland[c]	...	103	74	...	18,716	16,528	373,756
Michigan	...	65	73	...	64,111	64,745	885,398
Minnesota	142	145	167	56,678	54,415	47,509	489,541
Mississippi	137	135	125	20,575	20,176	18,963	136,787
Missouri	168	148	130	193,188	185,570	182,628	320,379
Montana[c]	35	38	38	29,699	28,613	26,060	138,346
Nebraska	67	66	45	70,996	65,158	58,401	87,537
Nevada	46	34	29	99,348	94,482	73,415	180,204
New Hampshire	...	...	32	...	...	71,634	128,392
New York	...	829	858	...	553,484	548,329	1,206,565
North Carolina	139	180	168	75,810	73,020	68,107	271,990
Ohio	...	...	230	...	...	138,761	1,561,937
Oregon[b]	75	82	78	39,354	43,660	41,033	509,584
Pennsylvania	237	267	291	148,445	146,461	139,706	1,271,742
South Dakota	...	...	25	...	...	21,527	35,557
Virginia[b]	103	77	51	43,146	46,522	43,575	354,154
Wisconsin	123	130	135	77,391	76,917	68,369	368,910
Alberta[b]	...	119[d]	121	58,022[d]	59,735[d]	58,159	...
British Columbia[b]	...	212[d]	190	...	147,518[d]	126,479	...
Manitoba[b]	...	46[d]	50	...	40,307[d]	40,204	...
New Brunswick[b]	...	26[d]	29	...	33,474[d]	25,073	...
Newfoundland[b]	...	24[d]	24	21,646[d]	18,782[d]	17,377	...
Northwest Territories[b]	...	8[d]	7	...	3,413[d]	3,063	...
Nova Scotia[b]	...	53[d]	7	...	37,345[d]	26,688	...
Ontario[b]	...	502[d]	498	...	443,123[d]	431,249	...
Prince Edward Island[b]	...	1[d]	3	...	4,643[d]	3,860	...
Quebec[b]	...	119[d]	132	...	257,617[d]	263,889	...
Saskatchewan[b]	...	23[d]	27	...	33,319[d]	36,785	...
Yukon[b]	...	4[d]	2	...	2,000[d]	1,661	...

Source: Deaths and cases—State and provincial workers' compensation authorities for calendar or fiscal year. Costs—*Social Security Bulletin*, 1990, *53* (4), 2-11. States not listed did not respond to survey.

Definitions: *Reported cases*—a reported case may or may not be work-related and may not receive compensation. *Compensated cases*—a compensated case is one determined to be work-related and for which compensation was paid.

[a] Reported cases involving medical and indemnity benefits, unless otherwise noted.

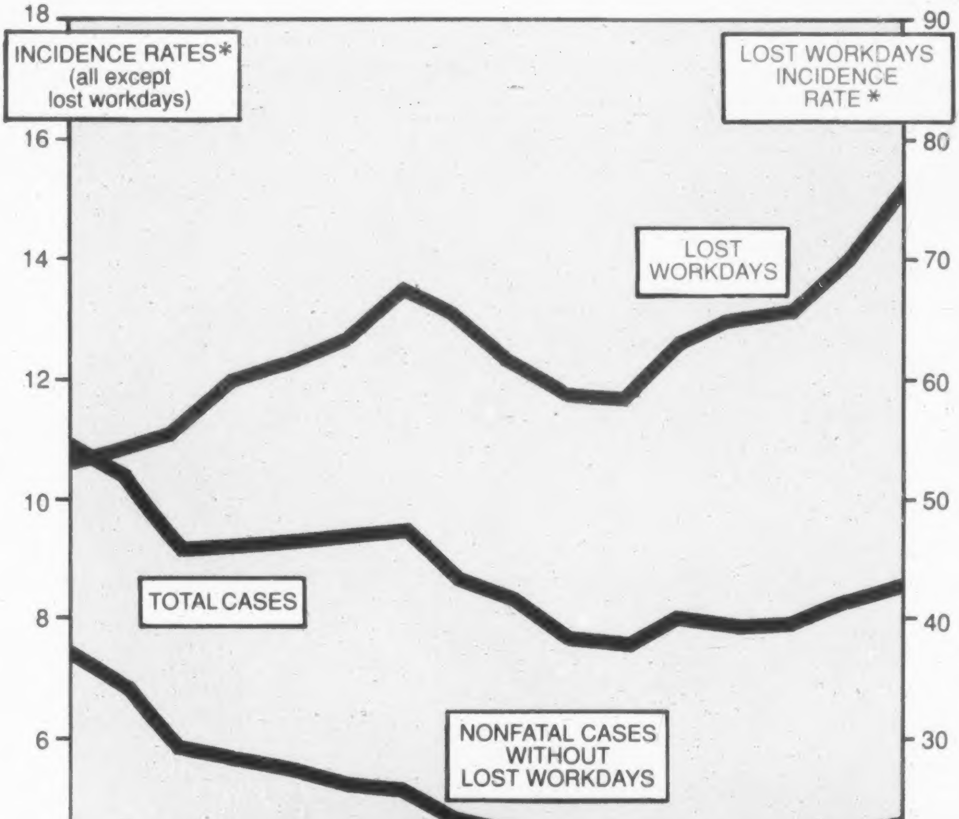
[b] Closed or compensated cases.

[c] Medical benefit cases only.

[d] Preliminary.

Trends in occupational incidence rates

Of the four occupational injury and illness incidence rates published by the Bureau of Labor Statistics, rates for total OSHA recordable cases and nonfatal cases without lost workdays have generally declined since 1973. Rates for lost workday cases and lost workdays have remained relatively unchanged or increased. All rates have increased since 1986. The chart below shows trends in the four rates from 1973 through 1988. See page 45 for definitions.



*Number of days or cases per 100 full-time employees per year.
See source and footnotes on page 45.

OSHA occupational injuries and illnesses

The tables below and on pages 46 and 47 are from the 1988 survey of occupational injuries and illnesses conducted by the Bureau of Labor Statistics, U.S. Department of Labor. These figures are *not comparable* to the National Health Interview Survey data on page 13 due to differences in definitions nor to National Safety Council estimates on pages 1, 34, and 38 due to differences in definitions and employment coverage (OSHA excludes unpaid family workers, some self-employed, and farms with less than 11 employees).

OSHA incidence rates are based on cases or days per 100 full-time workers using 200,000 employee hours as the equivalent. Other definitions (see below) affect which cases are counted and how they are classified.

BLS Estimates of Occupational Injury and Illness Incidence Rates by Industry Division, 1987–1988

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Industry Division	Incidence Rates[c]							
	Total Cases[d]		Lost Workday Cases		Nonfatal Cases Without Lost Workdays		Lost Workdays	
	1988	1987	1988	1987	1988	1987	1988	1987
Private Sector[e]	**8.6**	**8.3**	**4.0**	**3.8**	**4.6**	**4.4**	**76.1**	**69.9**
Agriculture, forestry, and fishing[e]	10.9	11.2	5.6	5.7	5.2	5.5	101.8	94.1
Mining	8.8	8.5	5.1	4.9	3.6	3.6	152.1	144.0
Construction	14.6	14.7	6.8	6.8	7.7	7.9	142.2	135.8
Manufacturing	13.1	11.9	5.7	5.3	7.3	6.7	107.4	95.5
Transportation and public utilities	8.9	8.4	5.1	4.9	3.8	3.5	118.6	108.1
Wholesale and retail trade	7.8	7.7	3.5	3.4	4.3	4.3	60.9	56.1
Finance, insurance, and real estate	2.0	2.0	0.9	0.9	1.1	1.1	17.2	14.3
Services	5.4	5.5	2.6	2.7	2.8	2.8	47.7	45.8

See source and footnotes below.

OSHA Definitions

(See BLS *Recordkeeping Guidelines for Occupational Injuries and Illnesses*, September 1986)

Occupational injury is any injury such as a cut, fracture, sprain, amputation, etc., which results from a work accident or from a single instantaneous exposure in the work environment.

Occupational illness is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion or direct contact.

Lost workdays are those days on which, because of occupational injury or illness, the employee was away from work or limited to restricted work activity. Lost workdays—away from work, are those days on which the employee would have worked but could not because of the occupational injury or illness. Lost workdays—restricted work activity, are those days on which: (1) the employee was assigned to a temporary job, or (2) the employee worked at a permanent job less than full-time, or (3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it. The number of lost workdays (consecutive or not) should not include the day of injury or onset of illness.

Total cases include all work-related deaths and illnesses, and those work-related injuries that result in: loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid.

Nonfatal cases without lost workdays are cases that do not involve fatalities or lost workdays but result in: (1) medical treatment, other than first aid, or (2) loss of consciousness, or (3) transfer to another job, or (4) diagnosis of occupational illness.

Source and footnotes for table above and on pages 46 and 47.

Source: Bureau of Labor Statistics, U.S. Department of Labor, survey involving a nationwide sample of approximately 280,000 units.

[a] Industry division 2 and 3 digit SIC code totals include data for industries not shown separately.

[b] Standard Industrial Classification Manual. 1972 Edition, 1977 Supplement.

[c] $$\text{Incidence Rate} = \frac{(\text{No. of injuries \& illnesses} \times 200{,}000)\ \textbf{OR}\ (\text{No. of lost workdays} \times 200{,}000)}{\text{Total hours worked by all employees during period covered}}$$

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[d] Includes fatalities. Because of rounding, the difference between the total and sum of the rates for lost workday cases and nonfatal cases without lost workdays may not reflect the fatality rate.

[e] Excludes farms with less than 11 employees.

BLS Estimates of Occupational Injury and Illness Incidence Rates for Selected Industries, 1988

Industry[a]	SIC Code[b]	Incidence Rates[c]			
		Total Cases[d]	Lost Workday Cases	Nonfatal Cases Without Lost Workdays	Lost Workdays
Private Sector[c]		**8.6**	**4.0**	**4.6**	**76.1**
Agriculture, forestry and fishing[c]		**10.9**	**5.6**	**5.2**	**101.8**
Agricultural production	01-02	12.2	6.2	6.0	110.6
Agricultural services	07	9.7	5.1	4.6	91.8
Forestry	08	12.4	6.5	5.8	138.3
Mining		**8.8**	**5.1**	**3.6**	**152.1**
Metal mining	10	8.7	4.9	3.7	150.5
Anthracite mining	11	10.0	8.1	1.8	199.8
Bituminous coal and lignite mining	12	12.0	8.6	3.4	241.9
Oil and gas extraction	13	8.3	4.3	3.8	141.6
Oil and gas field services	138	13.2	7.1	5.9	239.1
Nonmetallic minerals, except fuels	14	7.2	4.1	3.1	90.5
Construction		**14.6**	**6.8**	**7.7**	**142.2**
General building contractors	15	14.0	6.4	7.6	132.2
Heavy construction contractors	16	15.1	7.0	8.1	162.3
Special trade contractors	17	14.7	7.0	7.7	141.1
Manufacturing		**13.1**	**5.7**	**7.3**	**107.4**
Durable goods		*14.2*	*5.9*	*8.2*	*111.1*
Lumber and wood products	24	19.5	10.0	9.5	189.1
Logging camps and logging contractors	241	19.8	12.8	6.9	346.7
Sawmills and planing mills	242	19.9	10.2	9.6	192.1
Millwork, plywood and structural members	243	18.4	9.2	9.2	155.8
Furniture and fixtures	25	16.6	7.3	9.3	115.7
Household furniture	251	15.6	6.9	8.7	103.9
Stone, clay, and glass products	32	16.0	7.5	8.5	141.0
Concrete, gypsum, and plaster products	327	16.7	8.3	8.4	162.0
Miscellaneous nonmetallic mineral products	329	13.4	6.3	7.1	114.0
Primary metal industries	33	19.4	8.2	11.2	161.3
Blast furnace and basic steel products	331	16.8	6.5	10.4	159.5
Iron and steel foundries	332	27.4	11.8	15.6	185.7
Primary nonferrous metals	333	24.6	7.6	17.0	155.7
Nonferrous rolling and drawing	335	14.5	6.8	7.7	134.3
Fabricated metal products	34	18.8	8.0	10.8	138.8
Cutlery, hand tools, and hardware	342	13.5	5.9	7.6	112.1
Fabricated structural metal products	344	21.7	9.6	12.1	158.4
Metal forgings and stampings	346	23.7	8.9	14.8	162.9
Miscellaneous fabricated metal products	349	16.6	7.2	9.4	131.9
Machinery, except electrical	35	12.1	4.7	7.4	82.8
Farm and garden machinery	352	16.4	6.2	10.1	104.6
Construction and related machinery	353	16.5	6.6	9.9	112.1
Metalworking machinery	354	11.9	4.2	7.7	68.4
Special industry machinery	355	14.7	5.4	9.4	86.1
General industrial machinery	356	14.2	5.7	8.5	93.5
Office and computing machines	357	3.9	1.9	2.0	40.0
Refrigeration and service machinery	358	16.8	6.8	10.1	128.6
Miscellaneous machinery, except electrical	359	13.1	5.1	7.9	91.6
Electric and electronic equipment	36	8.0	3.3	4.6	64.6
Electric distributing equipment	361	10.3	4.3	6.0	82.5
Electric industrial apparatus	362	10.9	4.5	6.4	93.9
Household appliances	363	16.2	6.5	9.7	106.3
Electric lighting and wiring equipment	364	11.2	4.8	6.4	98.8
Communication equipment	366	4.2	1.8	2.4	39.9
Electronic components and accessories	367	6.1	2.6	3.5	44.7
Miscellaneous electrical equipment and supplies	369	12.1	5.0	7.2	105.7
Transportation equipment	37	17.7	6.6	11.1	134.2
Motor vehicles and equipment	371	23.3	8.4	14.8	168.7
Aircraft and parts	372	9.8	3.6	6.3	67.5
Ship and boat building and repairing	373	36.3	14.8	21.5	344.0
Railroad equipment	374	19.3	7.2	12.1	139.0
Guided missiles, space vehicles, parts	376	4.6	2.2	2.4	41.3
Instruments and related products	38	6.1	2.6	3.5	51.5
Measuring and controlling devices	382	6.1	2.6	3.5	57.5
Medical instruments and supplies	384	7.6	3.3	4.3	61.0
Photographic equipment and supplies	386	5.0	2.1	2.9	35.3
Miscellaneous manufacturing industries	39	11.3	5.1	6.1	91.0
Miscellaneous manufactures	399	13.1	5.9	7.2	98.9
Nondurable goods		*11.4*	*5.4*	*6.0*	*101.7*
Food and kindred products	20	18.5	9.2	9.4	169.7
Meat products	201	27.9	13.3	14.5	245.9
Dairy products	202	15.6	8.0	7.6	164.0
Preserved fruits and vegetables	203	17.2	7.9	9.3	128.8

See source and footnotes on page 45.

BLS Estimates of Occupational Injury and Illness Incidence Rates for Selected Industries, 1988, Cont.

Industry[a]	SIC Code[b]	Incidence Rates[c]			
		Total Cases[d]	Lost Workday Cases	Nonfatal Cases Without Lost Workdays	Lost Workdays
Grain mill products	204	13.1	6.4	6.6	114.1
Bakery products	205	13.0	7.2	5.8	156.9
Beverages	208	18.0	9.1	8.9	163.7
Miscellaneous foods and kindred products	209	15.3	7.9	7.5	139.4
Tobacco manufactures	21	9.3	2.9	6.3	53.0
Textile mill products	22	9.6	4.0	5.6	78.8
Knitting mills	225	8.6	4.1	4.5	79.9
Apparel and other textile products	23	8.1	3.5	4.6	68.2
Men's and boys' furnishings	232	10.5	4.8	5.7	103.3
Women's and misses' outerwear	233	5.0	2.0	3.0	41.4
Miscellaneous fabricated textile products	239	10.7	4.5	6.2	73.0
Paper and allied products	26	13.1	5.9	7.2	124.3
Paper mills, except building paper	262	12.9	5.2	7.7	132.6
Miscellaneous converted paper products	264	12.8	6.5	6.3	120.4
Paperboard containers and boxes	265	13.3	6.2	7.1	120.3
Printing and publishing	27	6.6	3.2	3.4	59.8
Newspapers	271	6.2	3.1	3.2	61.4
Commercial printing	275	7.9	3.7	4.3	65.6
Chemicals and allied products	28	7.0	3.3	3.8	59.0
Industrial inorganic chemicals	281	6.0	2.7	3.3	62.7
Plastics materials and synthetics	282	5.8	2.6	3.3	52.9
Drugs	283	5.3	2.5	2.8	43.7
Soap, cleaners, and toilet goods	284	8.5	4.1	4.4	67.2
Industrial organic chemicals	286	6.3	2.6	3.7	49.0
Agricultural chemicals	287	9.3	4.5	4.8	73.5
Petroleum and coal products	29	7.0	3.2	3.8	68.4
Petroleum refining	291	5.8	2.7	3.1	59.0
Rubber and miscellaneous plastics products	30	16.3	8.1	8.2	142.9
Miscellaneous plastics products	307	16.4	7.9	8.5	134.7
Leather and leather products	31	11.4	5.6	5.8	128.2
Transportation and public utilities		**8.9**	**5.1**	**3.8**	**118.6**
Railroad transportation	40	6.9	4.9	2.0	85.4
Local and interurban passenger transit	41	9.0	5.3	3.7	140.3
Local and suburban transportation	411	11.1	6.6	4.5	167.5
Trucking and warehousing	42	13.9	8.0	5.8	212.2
Trucking, local and long distance	421	13.9	8.1	5.8	218.6
Water transportation	44	12.2	7.5	4.7	294.9
Transportation by air	45	13.0	7.6	5.4	130.1
Transportation services	47	4.1	2.2	1.8	49.6
Communication	48	3.1	1.6	1.5	30.8
Electric, gas, and sanitary services	49	7.7	3.8	3.9	72.2
Electric services	491	6.2	2.8	3.5	52.1
Gas production and distribution	492	7.4	3.9	3.5	67.5
Wholesale and retail trade		**7.8**	**3.5**	**4.3**	**60.9**
Wholesale trade — durable goods	50	6.7	3.2	3.5	57.4
Wholesale trade — nondurable goods	51	9.1	4.8	4.3	86.7
Retail trade		7.9	*3.4*	*4.6*	57.6
Building materials and garden supplies	52	10.6	5.0	5.6	82.7
General merchandise stores	53	9.9	4.6	5.4	71.0
Food stores	54	11.3	4.7	6.5	91.2
Automotive dealers and service stations	55	6.7	2.7	4.0	46.5
Apparel and accessory stores	56	2.5	1.1	1.4	26.2
Furniture and home furnishing stores	57	4.9	2.3	2.6	43.4
Eating and drinking places	58	8.8	3.5	5.3	54.1
Miscellaneous retail	59	4.0	1.8	2.2	33.9
Finance, insurance, and real estate		**2.0**	**0.9**	**1.1**	**17.2**
Banking	60	1.5	0.6	0.9	10.4
Insurance carriers	63	1.7	0.8	1.0	14.0
Real estate	65	4.7	2.4	2.3	43.7
Services		**5.4**	**2.6**	**2.8**	**47.7**
Hotels and other lodging places	70	10.4	4.6	5.8	80.6
Personal services	72	3.3	1.7	1.6	29.9
Business services	73	4.3	2.1	2.3	39.8
Auto repair, services, and garages	75	6.6	3.2	3.4	61.2
Miscellaneous repair services	76	8.1	4.0	4.1	82.9
Motion pictures	78	2.8	1.0	1.8	24.4
Amusement and recreation services	79	8.7	3.9	4.8	59.2
Health services	80	7.3	3.7	3.6	69.6
Legal services	81	0.6	0.3	0.3	4.9
Educational services	82	3.8	1.6	2.1	26.9
Social services	83	5.2	2.6	2.6	44.7
Museums, botanical, zoological gardens	84	6.9	3.1	3.8	44.4
Miscellaneous services	89	1.7	0.7	0.9	15.1

See source and footnotes on page 45.

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Occupational Injury and Illness Incidence Rates by Industry, 1988, Reporters to the National Safety Council

(Note: The 1989 rates were not available at press time, and may be found in *Work Injury and Illness Rates, 1990.*)

Industry	SIC Code[b]	Incidence Rates per 100 Full-Time Employees[a]					
		Total Cases	Lost Workday Cases	Cases Involving Days Away From Work & Deaths	Nonfatal Cases Without Lost Workdays	Lost Work-days[c]	Days Away From Work
All Industries[d]		**8.78**	**3.58**	**2.17**	**5.20**	**72**	**49**
Agriculture, forestry, & fishing		**10.59**	**4.22**	**3.50**	**6.35**	**82**	**56**
Agricultural production, crops	01	15.40	5.27	3.60	10.14	91	35
Forestry	08	4.02	1.06	0.85	2.92	53	46
Mining		**5.37**	**1.43**	**1.06**	**3.93**	**46**	**36**
Metal mining	10	10.36	2.03	1.85	8.33	77	65
Bituminous coal & lignite mining	12	9.51	1.75	1.46	7.74	51	30
Oil & gas extraction	13	2.58	1.07	0.74	1.49	34	26
Nonmetallic minerals, except fuels	14	6.86	1.74	1.03	5.12	50	38
Construction		**10.97**	**4.28**	**3.32**	**6.68**	**93**	**77**
General building contractors	15	13.13	4.88	3.81	8.25	117	101
Heavy construction contractors	16	10.09	4.10	3.13	5.98	86	70
Special trade contractors	17	16.66	4.59	4.54	12.07	96	95
Manufacturing		**9.69**	**3.56**	**1.84**	**6.13**	**68**	**42**
Durable goods		*12.31*	*4.42*	*2.29*	*7.88*	*82*	*50*
Lumber and wood products	24	10.75	4.47	3.32	6.27	126	100
Sawmills and planing mills	242	13.26	5.36	4.19	7.90	130	104
Millwork, plywood, and structural members	243	9.46	4.39	2.95	5.06	144	114
Furniture and fixtures	25	17.47	6.76	1.63	10.71	132	27
Household furniture	251	9.03	2.51	1.59	6.51	38	31
Stone, clay, and glass products	32	12.70	4.99	2.91	7.71	101	68
Cement, hydraulic	324	7.99	2.27	1.66	5.68	61	44
Concrete, gypsum, and plaster products	327	7.93	2.81	2.44	5.12	72	62
Miscellaneous nonmetallic mineral products	329	8.89	4.12	3.05	4.77	81	63
Primary metal industries	33	15.57	4.89	2.27	10.67	104	63
Blast furnace and basic steel products	331	11.99	3.97	2.30	8.01	107	77
Iron and steel foundries	332	29.90	8.08	3.30	21.80	137	72
Primary nonferrous metals	333	16.05	5.64	2.78	10.40	121	71
Nonferrous rolling and drawing	335	12.20	4.07	1.40	8.13	76	36
Fabricated metal products	34	12.38	4.41	2.21	7.96	[illegible]	47
Metal cans and shipping containers	341	14.38	4.44	1.62	9.94	[illegible]	39
Cutlery, hand tools, and hardware	342	10.71	4.07	3.08	6.64	88	46
Fabricated structural metal products	344	5.54	1.96	1.52	3.58	45	38
Metal forgings and stampings	346	27.10	9.47	2.92	17.63	126	65
Miscellaneous fabricated metal products	349	11.12	3.16	2.47	7.95	64	54
Machinery, except electrical	35	9.38	3.38	1.95	6.00	63	36
Farm and garden machinery	352	10.41	3.55	0.64	6.86	52	12
Construction and related machinery	353	11.67	4.25	2.57	7.41	88	52
Metalworking machinery	354	13.17	5.02	3.56	8.15	80	64
Special industry machinery	355	9.40	3.18	2.51	6.22	44	38
General industrial machinery	356	8.09	3.19	2.40	4.89	54	39
Office and computing machines	357	2.23	1.24	0.67	0.99	26	9
Refrigeration and service machinery	358	17.12	4.86	3.34	12.26	89	60
Miscellaneous machinery, except electrical	359	7.73	3.61	1.29	4.11	71	29
Electric and electronic equipment	36	4.38	1.76	1.12	2.62	35	21
Electric distributing equipment	361	11.39	4.85	2.50	6.54	104	50
Electric industrial apparatus	362	6.92	2.55	1.53	4.37	39	23
Household appliances	363	9.50	2.33	1.81	7.17	44	21
Electric lighting and wiring equipment	364	9.96	3.35	1.87	6.61	78	46
Communication equipment	366	2.19	0.90	0.63	1.30	18	10
Electronic components and accessories	367	3.79	1.30	0.94	2.49	24	16
Miscellaneous electrical equipment and supplies	369	7.63	3.95	2.94	3.68	78	57
Transportation equipment	37	18.34	6.57	3.27	11.77	109	69
Motor vehicles and equipment	371	32.47	11.50	5.62	20.97	188	118
Aircraft and parts	372	7.43	2.60	1.65	4.82	53	39
Ship and boat building and repair	373	13.63	5.23	1.94	8.40	58	38
Railroad equipment	374	17.28	5.28	4.88	11.97	123	116
Guided missiles, space vehicles, and parts	376	3.49	1.28	0.32	2.21	20	6
Instruments and related products	38	5.52	2.43	1.11	3.09	44	24
Measuring and controlling devices	382	7.34	3.09	1.87	4.25	53	25
Medical instruments and supplies	384	5.82	2.36	1.04	3.46	42	22
Miscellaneous manufacturing industries	39	9.74	4.74	3.74	5.01	78	62
Nondurable goods		*7.00*	*2.68*	*1.37*	*4.32*	*54*	*33*
Food and kindred products	20	15.27	5.52	3.10	9.75	107	66
Meat products	201	27.04	10.27	4.38	16.76	163	88
Dairy products	202	9.06	3.42	2.46	5.63	70	52
Preserved fruits and vegetables	203	23.14	6.26	3.20	16.87	132	74

See source and footnotes on page 49.

Occupational Injury and Illness Incidence Rates by Industry, 1988, Reporters to the National Safety Council, Cont.

Industry	SIC Code[b]	Incidence Rates per 100 Full-Time Employees[a]					
		Total Cases	Lost Workday Cases	Cases Involving Days Away From Work & Deaths	Nonfatal Cases Without Lost Workdays	Lost Work-days[c]	Days Away From Work
Grain mill products	204	9.29	2.57	2.08	6.72	77	64
Bakery products	205	13.61	5.30	2.89	8.30	120	73
Beverages	208	10.19	3.38	2.40	6.81	83	59
Miscellaneous foods and kindred products	209	6.28	2.96	1.73	3.31	75	57
Textile mill products	22	6.17	2.17	0.52	3.99	38	17
Weaving mills, cotton	221	6.13	1.83	0.35	4.29	33	14
Knitting mills	225	7.89	3.34	0.94	4.55	38	14
Apparel and other textile products	23	7.01	4.02	1.18	2.99	68	35
Miscellaneous fabricated textile products	239	6.45	2.61	0.86	3.85	58	44
Paper and allied products	26	10.65	3.66	2.42	6.98	90	67
Paper mills, except building paper	262	12.29	3.68	2.28	8.61	91	65
Miscellaneous converted paper products	264	7.47	3.45	2.21	4.02	77	56
Paperboard containers and boxes	265	11.01	5.10	3.56	5.90	122	99
Printing and publishing	27	8.32	3.69	2.66	4.62	58	44
Newspapers	271	5.00	2.78	2.27	2.20	46	38
Commercial printing	275	10.99	4.60	3.03	6.38	70	53
Chemicals and allied products	28	3.59	1.42	0.59	2.16	27	14
Industrial inorganic chemicals	281	5.21	1.99	1.06	3.21	44	29
Plastics materials and synthetics	282	3.32	1.16	0.43	2.15	26	12
Drugs	283	2.92	1.30	0.69	1.62	21	13
Soap, cleaners, and toilet goods	284	4.12	2.38	1.41	1.72	47	29
Paints and allied products	285	4.72	2.40	0.83	2.32	36	20
Industrial organic chemicals	286	3.62	1.31	0.36	2.31	24	10
Agricultural chemicals	287	2.59	0.90	0.38	1.68	22	13
Miscellaneous chemical products	289	4.34	1.84	0.98	2.50	38	22
Petroleum and coal products	29	4.45	1.77	0.92	2.67	41	23
Petroleum refining	291	4.10	1.64	0.71	2.44	38	20
Paving and roofing materials	295	6.64	2.83	2.35	3.81	78	60
Rubber and miscellaneous plastics products	30	8.91	4.29	2.58	4.62	86	55
Miscellaneous plastics products	307	10.18	4.41	2.35	5.76	103	62
Leather and leather products	31	9.14	4.68	1.57	4.46	78	34
Transportation & public utilities		**6.61**	**3.76**	**2.75**	**2.85**	**83**	**63**
Railroad transportation	40	7.32	5.72	5.04	1.59	205	188
Local and interurban passenger transit	41	15.87	10.59	10.54	5.28	203	202
Local and suburban transportation	411	16.90	11.25	11.25	5.66	214	213
Trucking and warehousing	42	22.67	15.81	15.62	6.85	278	276
Trucking, local and long distance	421[e]	23.64	16.56	16.55	7.06	293	292
Water transportation	44	6.77	3.74	3.72	3.00	156	155
Transportation by air	45	6.52	3.46	2.78	3.06	54	42
Pipelines, except natural gas	46	4.01	1.51	1.30	2.51	40	30
Communication	48	1.89	0.86	0.68	1.03	23	13
Electric, gas, and sanitary services	49	5.74	2.84	1.55	2.89	54	31
Electric services	491	5.04	2.39	1.01	2.65	49	23
Gas production and distribution	492	6.57	3.38	2.42	3.18	55	36
Water supply	494	12.36	6.30	5.94	6.06	138	119
Wholesale & retail trade		**6.62**	**3.46**	**2.16**	**3.16**	**64**	**46**
Wholesale trade—durable goods	50	9.70	5.03	3.12	4.66	101	72
Wholesale trade—nondurable goods	51	4.75	2.57	1.92	2.15	45	36
Retail trade		**3.35**	**1.72**	**0.87**	**1.63**	**23**	**15**
Automotive dealers and service stations	55	2.58	1.13	0.52	1.45	22	15
Services		**4.99**	**2.34**	**2.22**	**2.64**	**35**	**28**
Business services	73	1.40	0.66	0.53	0.74	11	7
Hospitals	806	7.75	3.71	3.55	4.04	53	44
Educational services	82	4.33	2.26	2.21	2.07	48	43
Social services	83	10.87	4.10	4.10	6.77	64	49
Public administration (government)		**11.85**	**5.10**	**4.67**	**6.75**	**106**	**96**
Executive, legislative, and general	91	18.74	6.75	5.91	11.98	127	115
Police protection	9221	9.45	2.69	2.64	6.76	74	47
Fire protection	9224	11.29	3.53	3.18	7.76	140	127
State departments of transportation		9.64	5.07	5.10	4.53	144	144
Offices		2.28	1.09	0.81	1.18	17	13
Research and development or laboratory		2.61	0.91	0.53	1.70	13	7

Source: Based on reports of National Safety Council members participating in the *Occupational Safety/Health Award Program.* These rates should not be interpreted as representative of the industries listed or of Council member companies. A more complete list of industries may be found in *Work Injury and Illness Rates, 1989.*

[a] Based on OSHA definitions, see page 45. 200,000 employee hours used as the equivalent of 100 full-time employees.

[b] *Standard Industrial Classification (SIC) Manual,* 1972 Edition.

[c] Lost workdays include both days away from work and days of restricted work activity.

[d] Totals for division and 2 and 3 digit SIC codes include data for 4 digit codes not shown separately. Rates for each industry may not be comparable to the previous year due to changes in numbers of reporters.

[e] Excludes refuse collection without disposal.

OCCUPATIONAL HEALTH

Over 240,000 occupational illnesses were recognized or diagnosed in 1988 according to the Bureau of Labor Statistics (BLS). Disorders associated with repeated trauma were the most common illness with 115,400 cases, followed by skin diseases and disorders (57,900), and disorders due to physical agents (17,300).

The overall incidence rate of occupational illness for all workers was 32.2 per 10,000 full-time workers. Of the major industry divisions, manufacturing had the highest rate in 1988, 93.6 per 10,000 full-time workers. Workers in manufacturing also had the highest rates for disorders associated with repeated trauma, disorders due to physical agents, and respiratory conditions due to toxic agents. Agriculture had the second highest incidence rate, 48.8, although agriculture workers had the highest incidence of all the industry divisions for skin diseases and poisoning.

The table below shows the number of occupational illnesses and the incidence rate per 10,000 full-time workers as measured by the 1988 BLS survey. To convert these to incidence rates per 100 full-time workers, which are comparable to other published BLS rates, divide the rates in the table by 100. The BLS survey records illnesses only for the year in which they are recognized or diagnosed as work-related. Since only recognized cases are included, the figures underestimate the incidence of occupational illness.

Number of Occupational Illnesses and Incidence Rates by Industry and Type of Illness, 1988

Occupational Illness	Private Sector[a]	Agriculture[a,b]	Mining[b]	Construction	Manufacturing	Trans. and Pub. Util.	Trade[b]	Finance[b]	Services
NUMBER OF ILLNESSES (in thousands)									
All Illnesses	**240.7**	**4.6**	**1.9**	**6.9**	**176.6**	**9.0**	**15.3**	**3.1**	**23.3**
Disorders associated with repeated trauma	115.4	0.3	0.5	0.7	103.9	2.6	4.6	0.5	2.3
Skin diseases, disorders	57.9	2.9	0.2	2.4	36.7	2.6	3.6	0.6	8.9
Disorders due to physical agents	17.3	0.3	0.1	0.7	12.7	0.7	1.3	(c)	1.4
Respiratory conditions due to toxic agents	16.1	0.2	0.1	0.9	9.2	1.0	1.3	0.5	3.0
Poisoning	5.5	0.3	0.2	0.6	2.8	0.3	0.5	(c)	0.8
Dust diseases of the lungs	2.9	(c)	0.7	0.2	1.2	0.3	(c)	(c)	0.3
All other occupational diseases	25.6	0.5	0.1	1.4	10.2	1.5	4.0	1.2	6.6
INCIDENCE RATE per 10,000 Full-Time Workers									
All Illnesses	**32.2**	**48.8**	**26.2**	**15.3**	**93.6**	**17.3**	**7.8**	**5.3**	**12.2**
Disorders associated with repeated trauma	15.4	3.7	7.3	1.5	55.1	5.0	2.3	0.8	1.2
Skin diseases, disorders	7.7	30.8	3.0	5.3	19.5	5.0	1.8	1.1	4.7
Disorders due to physical agents	2.3	2.7	1.5	1.6	6.7	1.3	0.7	(c)	0.7
Respiratory conditions due to toxic agents	2.2	2.1	0.7	2.0	4.9	1.9	0.6	0.9	1.6
Poisoning	0.7	3.2	2.6	1.2	1.5	0.6	0.2	(c)	0.4
Dust diseases of the lungs	0.4	(c)	10.2	0.5	0.6	0.6	(c)	(c)	0.1
All other occupational diseases	3.4	5.8	1.0	3.1	5.4	3.0	2.0	2.0	3.5

Source: Bureau of Labor Statistics, U.S. Department of Labor. Components may not add to totals due to rounding.

[a] Excludes farms with less than 11 employees.

[b] Agriculture includes forestry and fishing; mining includes quarrying and oil and gas extraction; trade includes wholesale and retail; finance includes insurance and real estate.

[c] Data not reported or do not meet publication guidelines.

MOTOR-VEHICLE ACCIDENTS, 1989

Between 1912 and 1989, motor-vehicle deaths per 10,000 registered vehicles were reduced 94 per cent, from 33 to about 2. In 1912, there were 3,100 fatalities when the number of registered vehicles totaled only 950,000. In 1989, there were 46,900 fatalities, but registrations soared to 193 million.

The 1989 mileage death rate was the lowest rate on record. Mileage data were not available in 1912.

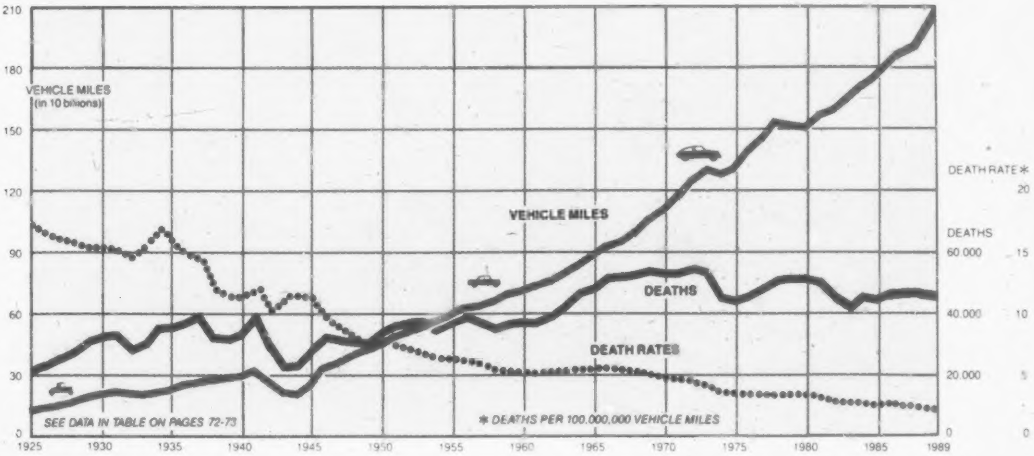
Deaths	**46,900**
Disabling injuries	**1,700,000**
Cost (see also pages 2 and 3)	**$72.2 billion**
Motor-vehicle mileage	**2,082 billion**
Death rate per 100,000,000 vehicle miles	**2.25**
Registered vehicles in the U.S.	**193,045,000**
Licensed drivers in the U.S.	**164,912,000**

Accident totals

	Number of Accidents	Drivers (Vehicles) Involved
Fatal	41,300	61,800
Disabling injury	1,100,000	2,000,000
Property damage and nondisabling injury[a]	11,700,000	20,700,000
Total (rounded)	12,800,000	22,800,000

[a] Estimating procedures for these figures were revised beginning with the 1990 edition.

Travel, deaths and death rates

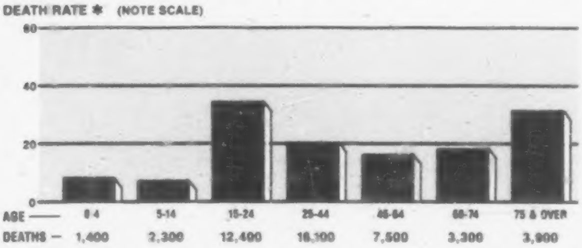


How people died in motor-vehicle accidents, 1989

Type of accident and age of victim

All motor-vehicle accidents

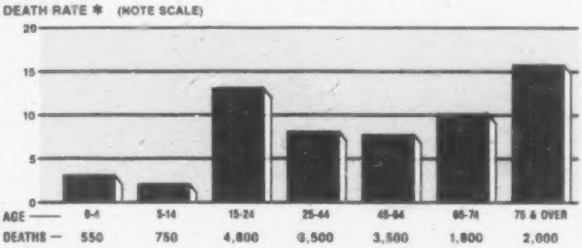
	Death Total	Change from 1988	Death Rate[3]
All motor-vehicle accidents	46,900	-4%	18.9
Urban	16,400	- 5%	
Rural	30,500	- 3%	



Includes deaths involving mechanically or electrically powered highway-transport vehicles in motion (except those on rails), both on and off the highway or street.

Collision between motor vehicles

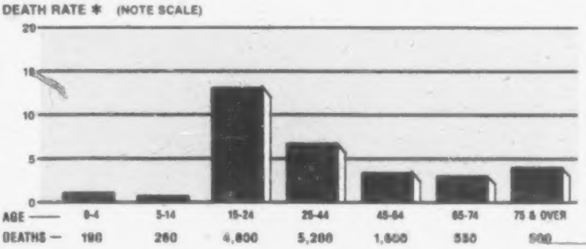
	Death Total	Change from 1988	Death Rate[3]
Collision between motor vehicles	19,900	-4%	8.0
Urban	6,100	-16%	
Rural	13,800	+ 2%	



Includes deaths from collisions of two or more motor vehicles. Motorized bicycles and scooters, trolley buses, and farm tractors or road machinery traveling on highways are motor vehicles.

Collision with fixed object

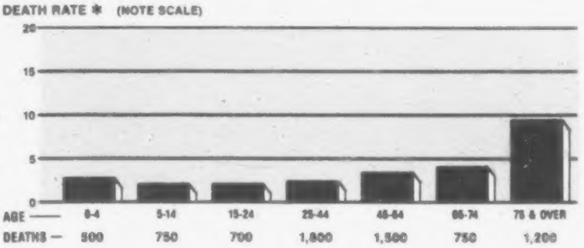
	Death Total	Change from 1988	Death Rate[3]
Collision with fixed object	13,100	-6%	5.3
Urban	4,800	0%	
Rural	8,300	-10%	



Includes deaths from collisions in which the first harmful event is the striking of a fixed object such as a guardrail, abutment, impact attenuator, etc.

Pedestrian accidents

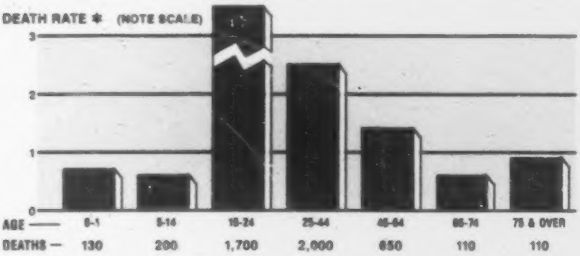
	Death Total	Change from 1988	Death Rate[3]
Pedestrian accidents	7,200	-1%	2.9
Urban	4,000	+ 3%	
Rural	3,200	- 6%	



Includes all deaths of persons struck by motor vehicles, either on or off a street or highway, regardless of the circumstances of the accident.

Noncollision accidents

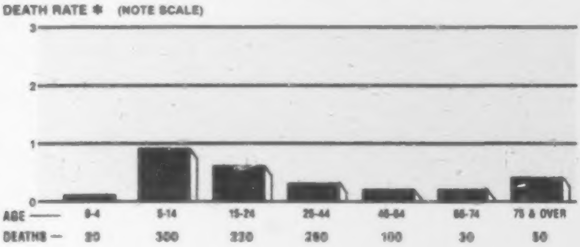
	Death Total	Change from 1988	Death Rate[a]
	4,900	– 6%	2.0
Urban	800	0%	
Rural	4,100	– 7%	



Includes deaths from accidents in which the first injury- or damage-producing event was an overturn, jackknife or other type of noncollision.

Collision with pedalcycle

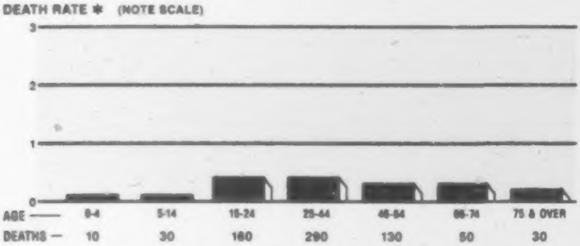
	1,000	+ 11%	0.4
Urban	500	+ 67%	
Rural	500	– 17%	



Includes deaths of pedalcyclists and motor-vehicle occupants from collisions between pedalcycles and motor vehicles on streets, highways, private driveways, parking lots, etc.

Collision with railroad train

	700	+ 17%	0.3
Urban	200	0%	
Rural	500	+ 25%	



Includes deaths from collisions of motor vehicles (moving or stalled) and railroad vehicles at public or private grade crossings. In other types of accidents, classification requires motor vehicle to be in motion.

Other collision

(animal, animal-drawn vehicles, street cars)

	100	0%	(b)

Includes deaths from motor-vehicle collisions not specified in other categories above. Most of the deaths arose out of accidents involving animals or animal-drawn vehicles.

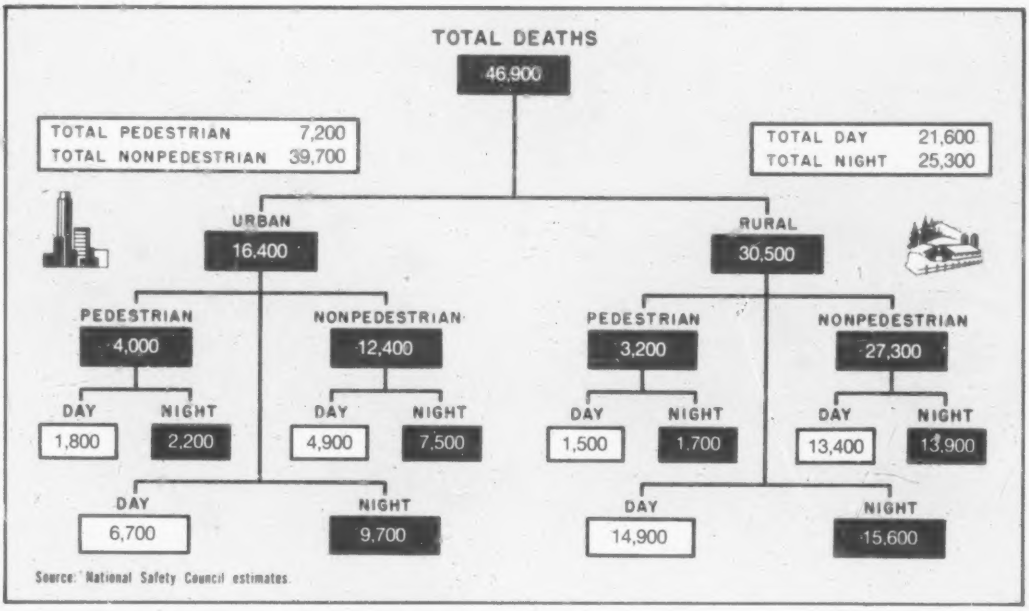
Note: Procedures and benchmarks for estimating deaths by type of accident and age were changed in 1990. Estimates for 1987 and later years are not comparable to earlier years. The noncollision and fixed object categories were most affected by the changes.

***Deaths per 100,000 population in each age group.**

[a] Deaths per 100,000 population.
[b] Death rate was less than 0.05.

Principal classes of motor-vehicle deaths

Almost two out of three deaths in 1989 occurred in places classified as rural. In urban areas, almost one fourth of the victims were pedestrians; in rural areas, the victims were mostly occupants of motor vehicles. More than one half of all deaths occurred in night accidents.

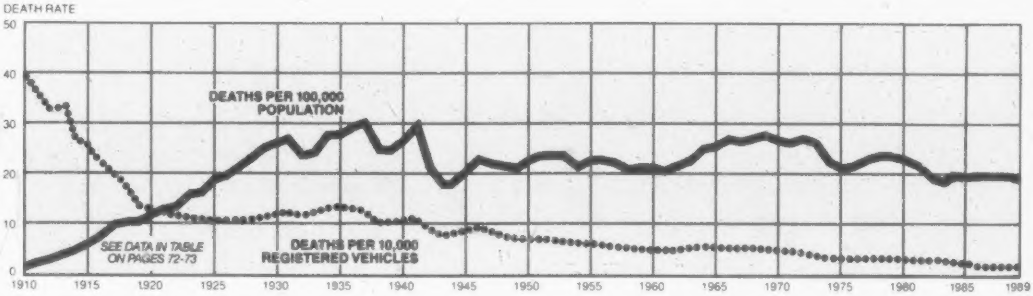

TOTAL DEATHS
46,900
TOTAL PEDESTRIAN 7,200
TOTAL NONPEDESTRIAN 39,700
TOTAL DAY 21,600
TOTAL NIGHT 25,300
URBAN
16,400
RURAL
30,500
PEDESTRIAN
4,000
NONPEDESTRIAN
12,400
PEDESTRIAN
3,200
NONPEDESTRIAN
27,300
DAY
1,800
NIGHT
2,200
DAY
4,900
NIGHT
7,500
DAY
1,500
NIGHT
1,700
DAY
13,400
NIGHT
13,900
DAY
6,700
NIGHT
9,700
DAY
14,900
NIGHT
15,600

Source: National Safety Council estimates.

Trends in death rates

Motor-vehicle deaths decreased 4 per cent from 1988 to 1989, mileage increased 3 per cent, the number of vehicles increased 2 per cent, and the population increased 1 per cent. As a result of the decrease in deaths in combination with increases in vehicle registrations, mileage, and population, the registration, mileage, and population death rates all decreased in 1989.

The mileage death rate per 100,000,000 vehicle miles was 2.25 in 1989, a 7 per cent decrease from the 1988 rate of 2.41 (see chart on page 51). The registration death rate per 10,000 motor vehicles also decreased 7 per cent from 2.59 in 1988 to 2.43 in 1989 (see chart below). The population death rate per 100,000 persons declined 5 percent, from 19.9 in 1988 to 18.9 in 1989 (see chart below). See also pages 72 and 73.



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State legislation

The table below shows the latest information available regarding the status of alcohol, occupant restraint, and speed legislation, which varies greatly by state. Currently all states and the District of Columbia have a 21 year old drinking age and child safety seat laws. Mandatory belt use laws are in effect in 33 states plus D.C., and the 65 mph speed limit is allowed on certain portions of rural interstates in at least 36 states.

State	Alcohol Legislation				Mandatory Belt Use Law			Child Safety Seat Law Date[f]	65 Speed Limit	
	21 Year Drinking Age Since[a]	Happy Hour Ban[b]	Dram Shop Law[c]	Open Container Law[d]	Effective Date	Enforcement[e]	Seating Positions		Effective Date[b]	Applicable Vehicles
Alabama	1985	yes	yes	no	none	...	...	1982	1987	all
Alaska	1983	no	yes	yes	none	...	...	7/85	none	...
Arizona	(g)	(g)	(g)	(g)	none	...	...	(g)	(g)	(g)
Arkansas	1957	no	no	no	none	...	...	8/83	4/87	all
California	1933	no	no	yes	1/86	2	all	1/83	5/87	some
Colorado	1987	no	yes	no	7/87	2	front	7/87	4/87	all
Connecticut	1985	yes	yes	no	1/86	1	front	1982	none	...
Delaware	1983	no	no	yes	none	...	...	6/82	none	...
Dist. of Col.	(g)	(g)	(g)	(g)	12/85	(g)	(g)	(g)	(g)	(g)
Florida	1985	no	yes	yes	7/86	2	front	7/83	4/87	all
Georgia	1985	no	no	no	9/88	2	front	7/84	2/88	all
Hawaii	1986	no	no	yes	12/85	1	front	1983	none	...
Idaho	1987	no	yes	yes[h]	7/86	2	front	1/85	5/87	all
Illinois	1980	yes	yes	yes	7/85	2	front	7/83	4/87	some
Indiana	1934	yes	yes	no	7/87	2	front	1/84	6/87	some
Iowa	1986	no	yes	yes	7/86	1	front	1/85	5/87	all
Kansas	(g)	(g)	(g)	(g)	7/86	(g)	(g)	(g)	(g)	(g)
Kentucky	1938	no	no	no	none	...	...	7/82	6/87	all
Louisiana	1987	no	no	no	7/86	2	front	1/85	4/87	all
Maine	1985	no	yes	no	none	...	...	9/83	6/87	some
Maryland	1982	no	no	no	7/86	2	front[i]	1/84	none	...
Massachusetts	1985	yes	no	no	repealed	...	...	1/82	none	...
Michigan	1978	no	yes	yes	7/85	2	front	3/82	12/87	some
Minnesota	1986	no	yes	yes	8/86	2	front	8/83	6/87	all
Mississippi	1986	no	yes	no	none	...	...	7/83	4/87	all
Missouri	1945	no	yes	no	9/85	2	front	1/84	4/87	some
Montana	1987	no	no	no	10/87	2	all	10/83	4/87	all
Nebraska	1985	yes	no	no	repealed	...	...	8/83	4/87	all
Nevada	1933	no	no	no	7/87	2	all	7/83	4/87	all
New Hampshire	1985	no	no	no	none	...	...	(g)	4/87	all
New Jersey	1982	yes	no	yes	3/85	2	front	4/83	none	...
New Mexico	1934	no	yes	yes	1/86	1	front	5/83	4/87	all
New York	1990	no	yes	no	12/84	1	front	4/82	none	...
North Carolina	1985	(g)	yes	yes	10/85	1	front	1/85	(g)	all
North Dakota	1936	no	yes	yes	none	...	...	1/84	4/87	all
Ohio	1987	no	(g)	yes	5/86	2	front	6/83	7/87	some
Oklahoma	1983	yes	no	yes	2/87	2	front	11/83	4/87	all
Oregon	1935	no	yes	yes	none	...	...	1/84	10/87	some
Pennsylvania	1935	no	no	no	11/87	2	front	11/83	none	...
Rhode Island	1984	yes	yes	no	none	...	...	7/87	none	...
South Carolina	1986	no	no	yes	7/89	2	front	(g)	7/87	all
South Dakota	1987	no	no	yes	none	...	...	7/84	4/87	all
Tennessee	1984	no	no	no	4/86	2	front	1/78	5/87	all
Texas	1985	no	yes	no	9/85	1	front	1/85	5/87	some
Utah	1935	yes	yes	yes	4/86	2	front	1983	5/87	all
Vermont	1986	yes	yes	no	none	...	...	7/84	4/87	all
Virginia	1986	yes	no	yes	1/88	2	front	1/83	7/88	some
Washington	1934	no	no	yes	6/86	2	all	1/84	4/87	some
West Virginia	1986	yes	yes	yes	none	...	...	7/81	5/87	all
Wisconsin	1986	no	no	yes	12/87	2	front	4/84	6/87	all
Wyoming	1988	no	no	no	6/89	2	front	4/85	5/87	all

Source: Offices of State Governor's Highway Safety Representatives.

[a] Year in which original law became effective, not when grandfather clauses expired; [b] Includes administrative action as well as legislation; [c] Alcohol server responsibility law; [d] Law prohibiting open liquor containers in motor vehicles; [e] "1" indicates primary enforcement (law can be enforced on its own), "2" indicates secondary enforcement (law enforced only if vehicle stopped for a separate offense); [f] Effective date of original law, not of subsequent revisions; [g] Information not available; [h] Does not include beer; [i] Excluding front center seat.

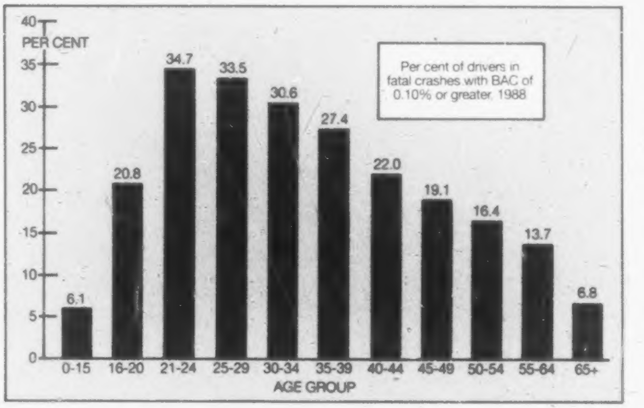
Alcohol

About 50 per cent of all traffic fatalities in 1988 involved an intoxicated or alcohol-impaired driver or non-occupant, according to studies of the National Highway Traffic Safety Administration's Fatal Accident Reporting System file. Of these 23,352 alcohol-related traffic fatalities, an estimated 18,502 occurred in accidents in which a driver or non-occupant was intoxicated (blood alcohol concentration [BAC] of 0.10 per cent or greater), and 4,850 involved a driver or non-occupant who had been drinking but was not legally intoxicated. Over 8,100 sober drivers, passengers, and non-occupants lost their lives in 1988 in alcohol-related accidents.

Information from other sources shows that alcohol is also a factor in about 29 per cent of serious injury accidents and 7 per cent of property damage accidents. The estimated cost of all alcohol-related motor-vehicle accidents in 1989 is about $16 billion.

Involvement by Age

The highest rates of intoxication are found for drivers in their early 20s (see chart below). Almost 35 per cent of drivers aged 21 through 24 who were involved in fatal accidents were found to be intoxicated. This rate decreases steadily by age to about 7 per cent for drivers aged 65 and older. For drivers of all ages combined who are involved in fatal accidents, about one in four is found to be intoxicated.



Underage drivers in the age group 16 through 20 have a lower than average intoxication rate, about 21 per cent. However, these drivers are also more likely than any other age group to be alcohol-impaired but not intoxicated (BAC greater than 0.01 per cent but less than 0.10 per cent).

Trends in Alcohol Involvement

Alcohol involvement in fatal traffic accidents decreased between 1982 and 1988 (see table below). In 1982, about 46 per cent of fatal traffic accidents involved at least one driver or non-occupant who was intoxicated. By 1988, this proportion had dropped to about 39 per cent. The proportion of fatal accidents involving drivers or non-occupants who were alcohol-impaired but not intoxicated remained relatively constant during this period, about 10 or 11 per cent. It is estimated that in 1988, for the first time in the reporting period, less than half of all fatal traffic accidents involved alcohol.

The reduction in alcohol involvement was especially large for drivers under 21 years of age. Motorcycle drivers have the highest alcohol involvement rate and exhibited the smallest reductions between 1982 and 1988.

Alcohol-Related Fatal Traffic Accidents

		Alcohol-Related	
	No Alcohol BAC = 0.00%	**BAC = 0.01-0.09%**	**BAC = >0.10%**
1982	43.3%	10.6%	46.1%
1983	45.0%	10.3%	44.7%
1984	46.7%	10.6%	42.7%
1985	49.3%	10.1%	40.6%
1986	48.3%	10.9%	40.8%
1987	49.3%	10.7%	40.0%
1988	50.6%	10.2%	39.2%

Source: National Highway Traffic Safety Administration. *Alcohol Involvement in Fatal Traffic Crashes, 1988 (DOT HS 807 448).* July 1989. Springfield, VA: National Technical Information Service.

Occupant protection

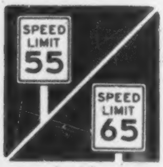
According to National Highway Traffic Safety Administration studies, safety belts are 45 per cent effective in preventing fatalities, 50 per cent effective in preventing moderate to critical injuries, and 10 per cent effective in preventing minor injuries. As of early 1990, 33 states and the District of Columbia have enacted mandatory safety belt use laws (see page 55). All fifty states and the District of Columbia have mandatory child safety seat laws.

Usage. According to the 19-city observation survey by the National Highway Traffic Safety Administration, overall driver restraint use in the U.S. was estimated to be 46 per cent in 1989, no change from 1988. For the 14 cities in states with laws, belt use was 50 per cent. For the 5 cities in states without laws, belt use was 33 per cent. Belt usage for automatic belts of all types was estimated at 85 per cent in 1989, down 3 per cent from 1988. Of the various types of automated belts, motorized shoulder belt systems were observed most often and had the highest usage rates, 96 per cent in 1989. Usage rates for nonmotorized three-point belts and nonmotorized shoulder belts were estimated as 75 per cent and 71 per cent, respectively.

Child safety seat usage in the 19-city study was estimated to be 81 per cent in 1989. Motorcycle helmet usage declined from 60 per cent in 1988 to 57 per cent in 1989. Although usage increased to approximately 100 per cent in cities under motorcycle helmet laws, it decreased from 46 per cent to 42 per cent in cities not under helmet laws.

Source: National Highway Traffic Safety Administration, Office of Driver and Pedestrian Research. *Occupant protection trends in 19 cities.* (Nov. 1989); *Use of automatic safety belt systems in 19 cities.* (Feb. 1990).

Speed



The Surface Transportation and Uniform Relocation Assistance Act of 1987, enacted April 2, 1987, allowed states to raise the speed limit to 65 mph on interstate highways passing through areas with populations of less than 50,000. In April 1987, 18 states raised the speed limit. In May, nine more states followed suit. By the end of 1987, 38 states had implemented the 65 mph limit.

The effect of increasing speed limits on rural interstates to 65 mph in those states which chose to do so was an increase of approximately 300 fatal accidents per year, according to a recent National Highway Traffic Safety Administration (NHTSA) time-series analysis[a]. This represents a 22 per cent increase in fatal accidents on those roads compared to what would have been expected based on data from a five-year period previous to the law change. In the same law change states, fatal accidents on other 55 mph roadways not affected by the law increased less than 1 per cent.

The study also found that fatal accidents increased significantly on both rural interstates and other 55 mph roadways in states without a law change, resulting in an additional increase of 300 fatal accidents per year. For roads in all states, the researchers demonstrated a correlation between increases in fatal accidents and increases in speed, and suggested that public perception of speed, the need for a 55 mph limit, and compliance with that limit was altered in both law change and non-law change states. Although increases in fatal accidents were not due solely to increases in vehicle miles traveled, there was a greater shift to rural interstate travel in law change states compared to 55 mph states. Drivers in 55 mph states simply drove faster on whatever class of highway (rural interstate or other 55 mph roadway) that was most convenient.

[a] McKnight, A.J., Klein, T.M., & Tippetts, A.S. *The effects of the 65 mph limit on speeds and accidents.* (NHTSA Report No. DOT HS 807 463, August 1989). Springfield, VA: National Technical Information Service.

Type of accident—urban and rural places

Motor-vehicle deaths occur more frequently in rural areas, but injuries occur more often in urban locations. With specific types of accidents, however, the urban-rural proportions vary considerably. For example, although about one third of all motor-vehicle deaths occur in urban places, more than one half of all pedestrian deaths and one half of all pedalcycle deaths occur in such areas. However, five times as many noncollision deaths and most collisions with railroad trains happen in rural places. For all locations, persons aged 15 to 44 years old account for 61 per cent of all motor-vehicle deaths. Other urban-rural and age differences are noted in the tables below.

Motor-Vehicle Deaths and Injuries by Type of Accident, 1989

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Type of Accident	Deaths			Nonfatal Injuries		
	Total	Urban	Rural	Total	Urban	Rural
Total	**46,900**	**16,400**	**30,500**	**1,700,000**	**1,090,000**	**610,000**
Collision with—						
Pedestrian	7,200	4,000	3,200	60,000	50,000	10,000
Other motor vehicle	19,900	6,100	13,800	1,240,000	850,000	390,000
Railroad train	700	200	500	3,000	2,000	1,000
Pedalcycle	1,000	500	500	60,000	40,000	20,000
Animal, animal-drawn vehicle	100	([a])	100	7,000	3,000	4,000
Fixed object	13,100	4,800	8,300	240,000	120,000	120,000
Noncollision	4,900	800	4,100	90,000	25,000	65,000

Source: National Safety Council estimates, based on reports from state traffic authorities. Procedures for estimating deaths and injuries for certain accident types were changed for the 1990 edition and are not comparable to those in previous editions.

[a] Less than 5.

Motor-Vehicle Deaths and Injuries by Type, Location, and Age, 1989

50

Type of Accident	ALL AGES	0-4 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over
				DEATHS				
TOTAL	**46,900**	**1,400**	**2,300**	**12,400**	**16,100**	**7,500**	**3,300**	**3,900**
Pedestrian	7,200	500	750	700	1,800	1,500	750	1,200
Pedalcycle[a]	1,000	20	300	220	280	100	30	50
Other types	38,700	880	1,250	11,480	14,020	5,900	2,520	2,650
Total—Urban	**16,400**	**700**	**700**	**3,800**	**5,100**	**2,700**	**1,500**	**1,900**
Pedestrian	4,000	410	380	140	680	950	600	840
Pedalcycle[a]	500	10	70	140	160	70	10	40
Other types	11,900	280	250	3,520	4,260	1,680	890	1,020
Total—Rural	**30,500**	**700**	**1,600**	**8,600**	**11,000**	**4,800**	**1,800**	**2,000**
Pedestrian	3,200	90	370	560	1,120	550	150	360
Pedalcycle[a]	500	10	230	80	120	30	20	10
Other types	26,800	600	1,000	7,960	9,760	4,220	1,630	1,630
				INJURIES				
TOTAL	**1,700,000**	**60,000**	**140,000**	**530,000**	**620,000**	**240,000**	**60,000**	**50,000**
Pedestrian	60,000	7,000	19,000	8,000	13,000	8,000	3,000	2,000
Pedalcycle[a]	60,000	700	18,900	18,100	17,700	3,500	400	700
Other types	1,580,000	52,300	102,100	503,900	589,300	228,500	56,600	47,300
Total—Urban	**1,090,000**	**40,000**	**90,000**	**320,000**	**400,000**	**160,000**	**40,000**	**40,000**
Pedestrian	50,000	6,400	16,000	5,700	10,500	7,100	2,600	1,700
Pedalcycle[a]	40,000	500	6,800	13,900	15,100	2,900	200	600
Other types	1,000,000	33,100	67,200	300,400	374,400	150,000	37,200	37,700
Total—Rural	**610,000**	**20,000**	**50,000**	**210,000**	**220,000**	**80,000**	**20,000**	**10,000**
Pedestrian	10,000	600	3,000	2,300	2,500	900	400	300
Pedalcycle[a]	20,000	200	12,100	4,200	2,600	600	200	100
Other types	580,000	19,200	34,900	203,500	214,900	78,500	19,400	9,600

Source: National Safety Council estimates based on reports from state traffic authorities. Procedures for estimating deaths and injuries for certain accident types were changed for the 1990 edition and are not comparable to those in previous editions.

[a] Pedalcycle excludes mopeds.

Vehicle movement in accidents

Collision between vehicles is the most common kind of accident in both urban and rural areas and the most frequent type of fatal accident in rural areas. Fatal two-vehicle collisions and "other collisions" (fixed objects, pedalcycles and railroad trains) occur in about equal numbers in urban areas. Among fatal two-vehicle collisions, head-on is most prevalent in rural areas and angle collision is most common in urban areas.

Numbers of Accidents, Total, and by Selected Movement, 1989

51

Vehicle Movement	Fatal Accidents			All Accidents		
	Total	Urban	Rural	Total	Urban	Rural
Total Accidents	**41,300**	**14,500**	**26,800**	**12,800,000**	**9,100,000**	**3,700,000**
Pedestrian	7,200	4,000	3,200	80,000	60,000	20,000
Two-vehicle collision total	15,800	4,900	10,900	10,200,000	7,800,000	2,400,000
Angle collision	*4,900*	*2,100*	*2,800*	*2,920,000*	*2,340,000*	*580,000*
Head-on collision	*5,300*	*800*	*4,500*	*380,000*	*230,000*	*150,000*
Rear-end collision	*1,600*	*800*	*800*	*3,280,000*	*2,510,000*	*770,000*
Other two-vehicle collision	*4,000*	*1,200*	*2,800*	*3,620,000*	*2,720,000*	*900,000*
Other collision total	13,600	4,900	8,700	1,800,000	1,070,000	730,000
Noncollision total	4,700	700	4,000	720,000	170,000	550,000

Source: Based on reports from state traffic authorities. Procedures for estimating deaths and injuries for certain accident types were changed for the 1990 edition and are not comparable to those in previous editions.

Accidents by class of trafficway

Fatal accidents happen mostly in rural areas, while nonfatal injury accidents and property damage accidents happen mostly in urban areas. In urban areas, local streets comprised the largest proportion in each of the categories listed. In rural areas, county roads accounted for the largest proportion in all categories.

Motor-Vehicle Accidents, Deaths, and Injuries by Class of Trafficway, 1989

52

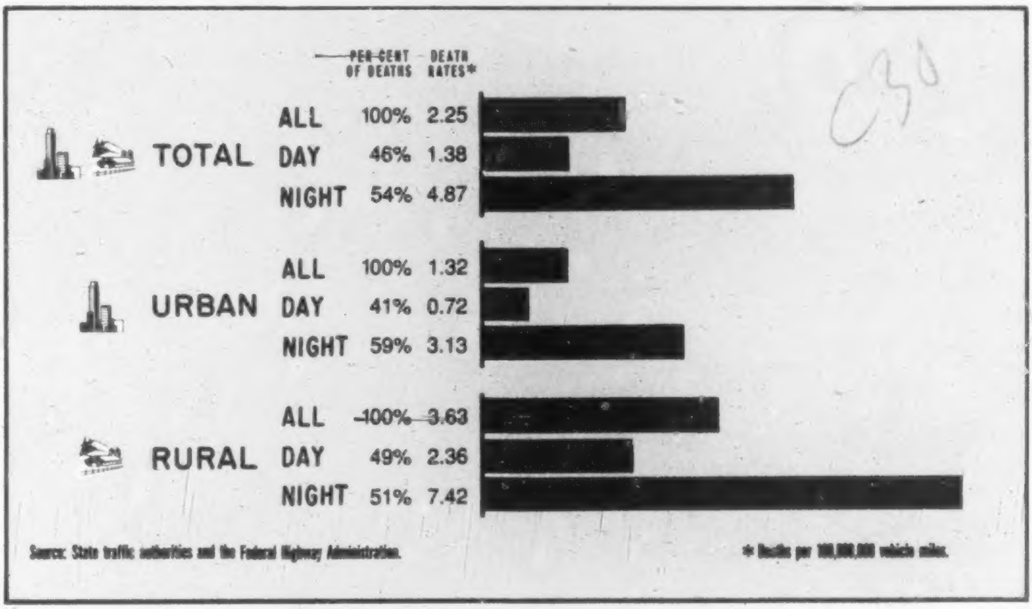
Class of Trafficway	Fatal Accidents	Injury Accidents	Property Damage Accidents	Deaths	Injuries
All Trafficways	**41,300**	**1,100,000**	**11,700,000**	**46,900**	**1,700,000**
		URBAN			
Number	*14,500*	*740,000*	*8,700,000*	*16,400*	*1,090,000*
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Local streets	43.0	56.5	60.9	42.4	54.8
State roads	20.6	19.8	17.0	20.1	20.4
Interstate	17.7	11.8	9.5	18.0	12.0
U.S. routes	12.7	7.7	8.6	13.5	8.3
County roads	4.8	3.6	2.9	4.9	3.8
Major arterial	0.5	0.3	0.4	0.5	0.4
Other controlled access roads	([a])	([a])	([a])	([a])	([a])
Other	0.7	0.3	0.7	0.6	0.3
		RURAL			
Number	*26,800*	*360,000*	*3,000,000*	*30,500*	*610,000*
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
County roads	35.4	42.4	37.6	34.7	41.0
State roads	32.9	30.0	28.6	32.9	30.9
U.S. routes	14.8	10.0	11.7	15.5	10.8
Interstate	11.5	9.8	10.4	11.7	10.0
Local streets	4.6	6.7	10.1	4.4	6.2
Major arterial	0.3	0.3	0.5	0.3	0.3
Other controlled access roads	([a])	([a])	([a])	([a])	([a])
Other	0.5	0.8	1.1	0.5	0.8

Source: Based on reports from five state traffic authorities. Procedures for estimating certain types of accidents were changed for the 1990 edition and are not comparable to those in previous editions.

[a] Less than 0.05 per cent.

Deaths and death rates by day and night

Motor-vehicle deaths and the mileage death rates are sharply higher at night, as noted in the chart below. In both urban and rural places, the mileage death rates at night are at least three times the day rates.



Source: State traffic authorities and the Federal Highway Administration.

* Deaths per 100,000,000 vehicle miles.

Hourly Distribution of Accidents by Day of Week, 1989

Hour Beginning	Fatal Accidents					All Accidents				
	Total	Mon.-Thurs.	Fri.	Sat.	Sun.	Total	Mon.-Thurs.	Fri.	Sat.	Sun.
All Hours	*100.0%*	*46.7%*	*16.6%*	*20.5%*	*16.2%*	*100.0%*	*55.6%*	*18.1%*	*15.2%*	*11.1%*
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Midnight	5.5	4.2	4.0	7.5	8.4	2.5	1.6	1.7	4.6	5.6
1:00 a.m	6.5	4.1	4.2	8.7	12.7	2.4	1.3	1.5	4.6	6.5
2:00 a.m	5.6	3.5	4.1	8.1	9.9	2.1	1.2	1.3	4.2	5.6
3:00 a.m	3.2	1.8	1.4	6.0	5.6	1.2	0.7	0.7	2.2	3.3
4:00 a.m	2.5	1.7	2.3	3.3	4.0	0.8	0.5	0.5	1.4	1.9
5:00 a.m	2.2	2.2	2.5	1.9	2.5	1.0	0.9	0.7	1.2	1.5
6:00 a.m	2.5	2.9	2.5	2.0	1.9	2.0	2.4	1.8	1.3	1.5
7:00 a.m	2.7	3.4	2.4	2.3	1.2	4.8	6.3	4.6	1.7	1.5
8:00 a.m	2.5	3.5	2.2	1.8	1.1	4.3	5.3	4.2	2.6	1.8
9:00 a.m	2.3	3.3	2.1	1.3	1.3	3.5	3.8	3.3	3.3	2.6
10:00 a.m	2.6	3.1	3.0	2.4	1.4	4.0	4.1	3.8	4.3	3.2
11:00 a.m	2.9	3.8	2.1	2.4	2.1	5.0	5.1	4.9	5.5	3.8
Noon	2.9	3.2	3.1	2.5	2.3	5.7	5.8	5.7	5.6	5.1
1:00 p.m	4.1	5.0	3.9	3.1	2.8	5.7	5.8	5.5	5.8	5.4
2:00 p.m	4.2	4.9	4.3	3.2	3.6	6.2	6.4	6.1	5.8	5.8
3:00 p.m	4.5	5.5	4.7	2.9	3.3	7.8	8.5	8.0	5.9	6.2
4:00 p.m	5.1	5.7	5.6	4.0	4.3	8.3	9.1	8.8	6.1	6.2
5:00 p.m	5.4	5.7	5.7	4.8	5.3	8.4	9.4	8.6	5.9	6.4
6:00 p.m	5.1	5.4	5.4	5.3	3.6	6.0	6.1	6.2	5.5	6.1
7:00 p.m	5.5	5.6	6.0	4.7	5.4	4.5	4.2	4.9	4.9	5.1
8:00 p.m	5.8	5.4	9.0	4.6	5.0	3.7	3.3	4.0	4.2	4.6
9:00 p.m	5.6	5.9	5.6	5.1	5.1	3.7	3.2	4.2	4.3	4.0
10:00 p.m	5.1	4.7	5.7	6.8	3.2	3.3	2.7	4.4	4.4	3.4
11:00 p.m	5.7	5.5	8.2	5.3	4.0	3.1	2.3	4.6	4.7	2.9

Source: Based on reports from five state traffic authorities.

Deaths by day and month

Motor-vehicle death totals vary sharply for different days of the week and different months of the year. Totals run above average from Friday through Sunday, with fatalities peaking on Saturday. Deaths also run higher during the latter part of the year.

The figures shown below are "complete" deaths, which include all motor-vehicle deaths that occur within twelve months after the day of the accident. These totals should not be compared with "immediate" death figures, such as those quoted during holiday periods. These latter totals include only those deaths which occur during the holiday period from accidents which occur during the same period, and do not include any *subsequent* deaths. (See page 66 for immediate and complete motor-vehicle deaths during holiday periods.)

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Motor-Vehicle Deaths by Day and Month, 1989

Day	1989 Deaths by Day		Total Deaths by Month and Average Deaths by Day											
	%	Avg.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Total	**100%**	**46,900**	**3,540**	**3,090**	**3,660**	**3,720**	**3,900**	**3,980**	**4,460**	**4,250**	**4,190**	**4,310**	**3,770**	**4,030**
Daily Avg.		**129**	**114**	**110**	**118**	**124**	**126**	**133**	**144**	**137**	**140**	**139**	**126**	**130**
Monday	12%	108	95	92	99	104	105	111	121	115	117	116	105	109
Tuesday	11%	99	87	84	91	95	97	102	111	105	107	107	97	100
Wednesday	11%	99	87	84	91	95	97	102	111	105	107	107	97	100
Thursday	12%	108	95	92	99	104	105	111	121	115	117	116	105	109
Friday	17%	153	135	130	140	147	149	158	171	162	166	165	149	154
Saturday	21%	189	167	161	173	182	185	195	211	201	205	204	185	190
Sunday	16%	144	127	123	132	138	141	148	161	153	156	155	141	145

Source: Based on reports from seven state traffic authorities.

Deaths and mileage death rates by month, 1985-1989

Motor-vehicle deaths are at their lowest levels in January and February. During 1989, deaths increased to their highest level in July and then stabilized from August through October. Ten of the twelve months showed decreases in fatalities in 1989 compared to 1988. The 1985 fatality total of 45,901 was the lowest recorded during the five-year period.

Mileage death rates are calculated by dividing the number of deaths per month by the number of miles of vehicle travel per month. These rates generally rise during the year, with the highest mileage death rates occurring in late summer and early fall. The 1989 mileage death rate of 2.25 is the lowest rate on record.

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Motor-Vehicle Deaths and Mileage Death Rates by Month, 1985-1989

Month	1989		1988		1987		1986		1985	
	Deaths	Death Rate[a]	Deaths	Death Rate[a]	Deaths	Death Rate[a]	Deaths	Death Rate[a]	Deaths	Death Rate[a]
Total	**46,900**	**2.25**	**48,900**	**2.41**	**48,290**	**2.51**	**47,865**	**2.60**	**45,901**	**2.59**
January	3,540	2.24	3,390	2.28	3,301	2.36	3,274	2.46	3,102	2.50
February	3,090	2.14	3,130	2.21	2,997	2.20	2,814	2.28	2,753	2.31
March	3,660	2.12	3,600	2.14	3,517	2.23	3,559	2.35	3,397	2.35
April	3,720	2.17	3,760	2.25	3,621	2.27	3,607	2.40	3,693	2.50
May	3,900	2.14	4,210	2.36	4,264	2.54	4,331	2.70	4,063	2.59
June	3,980	2.17	4,320	2.42	4,279	2.55	4,460	2.75	4,394	2.77
July	4,460	2.36	4,720	2.55	4,472	2.54	4,704	2.75	4,319	2.59
August	4,250	2.23	4,550	2.47	4,815	2.71	4,895	2.81	4,536	2.68
September	4,190	2.39	4,370	2.55	4,300	2.62	4,197	2.70	4,037	2.68
October	4,310	2.39	4,520	2.58	4,535	2.72	4,244	2.66	4,076	2.64
November	3,770	2.24	3,980	2.44	4,169	2.68	3,920	2.65	3,942	2.80
December	4,030	2.44	4,350	2.64	4,020	2.58	3,860	2.58	3,589	2.53

Source: Deaths—National Center for Health Statistics: (1985-1987), National Safety Council estimates: (1988 revised; 1989 preliminary). Mileage—Federal Highway Administration, *Traffic Volume Trends.*

[a] Deaths per 100,000,000 vehicle miles.

Age of driver

Twenty-five per cent of the 164,900,000 licensed drivers in the nation in 1989 were in the 25 to 34 year age group and accounted for 28 per cent each of the drivers involved in fatal and all motor-vehicle accidents. The figures in the last two columns at the right indicate the frequency of accident involvement. The fatal accident involvement rates (per 100,000 drivers in each age group) ranged from a low of 19 for drivers 65 to 74 years of age to a high of 79 for drivers under 20. The all accident involvement rates (per 100 drivers in each age group) ranged from a low of 7 for drivers 65 to 74 years of age to a high of 33 for drivers under 20 years of age.

Age of Drivers—Total Number and Number in Accidents, 1989

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Age Group	All Drivers		Drivers in Accidents					
			Fatal		All		Per No. of Drivers	
	Number	%	Number	%	Number	%	Fatal[a]	All[b]
Total	**164,900,000**	**100.0%**	**61,800**	**100.0%**	**22,800,000**	**100.0%**	**37**	**14**
Under 20	10,100,000	6.1	8,000	12.9	3,300,000	14.5	79	33
20-24	17,200,000	10.4	9,300	15.1	3,700,000	16.2	54	22
25-34	41,100,000	24.9	17,300	28.0	6,300,000	27.6	42	15
35-44	34,100,000	20.7	10,800	17.5	4,100,000	18.0	32	12
45-54	22,500,000	13.7	6,300	10.2	2,200,000	9.7	28	10
55-64	18,900,000	11.5	4,700	7.6	1,500,000	6.6	25	8
65-74	14,700,000	8.9	2,800	4.5	1,100,000	4.8	19	7
75 and over	6,300,000	3.8	2,600	4.2	600,000	2.6	41	9

Source: Drivers in accidents based on reports from seven state traffic authorities. Number of drivers by age are from Federal Highway Administration. Procedures for estimating number of accidents were changed for the 1990 edition and are not comparable to those in previous editions.

[a] Drivers in fatal accidents per 100,000 drivers in each age group.

[b] Drivers in all accidents per 100 drivers in each age group.

Sex of driver

Of the estimated 164,900,000 drivers in 1989, about 85,200,000 were males and 79,700,000 were females. Males, accounting for about 71 per cent of the miles driven each year according to the latest estimates, have higher involvement rates than females for fatal accidents. Females account for about 29 per cent of miles driven and have higher involvement rates for all accidents. At least part of the difference in rates may be due to the time, place, and circumstances of driving.

Sex of Driver Involved in Accidents, 1980-1989

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Year	Drivers in Fatal Accidents				Drivers in All Accidents			
	Male		Female		Male		Female	
	No.	Rate[a]	No.	Rate[a]	No.	Rate[b]	No.	Rate[b]
1980	56,100	56	12,200	24	20,100,000	200	9,700,000	192
1981	53,200	52	11,800	23	20,500,000	200	9,500,000	183
1982	48,800	47	11,500	22	20,600,000	198	9,900,000	186
1983	46,300	43	11,700	21	20,400,000	187	10,300,000	184
1984	47,600	42	13,300	23	21,800,000	192	11,200,000	190
1985	46,800	40	12,700	21	21,400,000	185	11,600,000	191
1986	46,400	41	13,100	18	22,100,000	196	12,900,000	177
1987	45,500	42	13,500	16	20,700,000	192	12,300,000	148
1988	49,200	45	14,800	17	22,500,000	204	13,700,000	155
1989	47,000	32[c]	14,800	24[c]	14,100,000[c]	95[c]	8,700,000[c]	143[c]

Source: Accidents and Drivers—National Safety Council estimates based on reports from state motor-vehicle departments and Federal Highway Administration. Mileage—National Safety Council estimates based on the Nationwide Personal Transportation Study, 1983-1984.

[a] Number of drivers in fatal accidents per 1,000,000,000 miles driven.

[b] Number of drivers in all accidents per 10,000,000 miles driven.

[c] Procedures for estimating number of accidents and male and female mileage were changed for the 1990 edition and are not comparable to those in previous editions.

Improper driving

In most motor-vehicle accidents, factors are present relating to the driver, the vehicle and the road, and it is the interaction of these factors which often sets up the series of events that result in an accident.

The table below relates only to the driver and shows the principal kinds of improper driving which were factors in accidents in 1989. Correcting these improper practices could reduce the number of accidents. This does not mean, however, that road and vehicle conditions can be disregarded.

Improper Driving Reported in Accidents, 1989

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Kind of Improper Driving	Fatal Accidents			Injury Accidents			All Accidents		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Improper driving	**61.9**	**61.3**	**62.3**	**73.7**	**75.3**	**70.5**	**72.7**	**74.2**	**68.9**
Speed too fast[a]	26.7	27.5	26.3	23.1	21.3	26.8	18.9	17.4	22.5
Right of way	12.2	15.4	10.5	25.4	29.8	16.3	23.4	26.5	15.7
Failed to yield	*8.4*	*10.1*	*7.5*	*18.2*	*20.6*	*13.2*	*17.8*	*19.8*	*13.1*
Passed stop sign	*2.1*	*1.7*	*2.3*	*2.0*	*2.2*	*1.7*	*1.6*	*1.6*	*1.4*
Disregarded signal	*1.7*	*3.6*	*0.7*	*5.2*	*7.0*	*1.4*	*4.0*	*5.1*	*1.2*
Drove left of center	4.5	2.4	5.6	1.5	0.9	2.7	1.7	1.2	2.8
Improper overtaking	6.2	3.9	7.3	2.0	1.5	3.2	2.4	2.1	3.3
Made improper turn	0.4	0.6	0.4	1.5	1.6	1.2	2.6	2.9	1.8
Followed too closely	0.7	0.7	0.7	6.1	6.9	4.5	6.4	7.0	5.0
Other improper driving	11.2	10.8	11.5	14.1	13.3	15.8	17.3	17.1	17.8
No improper driving stated	**38.1**	**38.7**	**37.7**	**26.3**	**24.7**	**29.5**	**27.3**	**25.8**	**31.1**

Source: Based on motor-vehicle reports from six state traffic authorities.

[a] Includes "speed too fast for conditions."

Older drivers

Older drivers tend to be overinvolved in traffic accidents according to a special report by a committee of the Transportation Research Board (TRB).[a] Young drivers, however, are the most prone to accident involvement when compared to other age groups on the basis of miles driven. The accident involvement rate decreases after age 25, increases gradually between 35 and 74, and then increases sharply. The same basic "U" shaped curve is found for fatal accident involvement rates.

There are clearly defined crash patterns for older drivers, though the reported pattern varies depending on the study. According to the TRB report, they are often cited in fatal crashes for failure to yield the right of way, and are more likely to be charged with inattention or failure to observe signs and signals. Older drivers are least likely to be cited for reckless driving, driving too fast, or drinking and driving. In accidents of all severities, drivers 65 and older are overrepresented in right- and left-turn crashes, those involving backing and parking maneuvers, and head-on crashes. These overinvolvements, however, are found only in urban areas, not in rural areas.

In other reports, Cerrelli[b] found that older drivers are more likely to be involved in intersection crashes, commit more right-of-way and signal violations, and less likely to be involved in single-vehicle crashes. Yanik[c] reports that elderly drivers typically have higher involvement rates for failure to yield, improper turning, ignoring stop signs and red lights, and starting up improperly into traffic. Older drivers had higher rates of left turn violations and inattention but there was no evidence that they had problems with backing or changing lanes or drove too slowly.

[a] Transportation Research Board. (1988). *Transportation in an aging society: Improving mobility and safety for older persons* (Special Report 218). Washington, DC: National Research Council.

[b] Cerrelli, E. C. (February 1989). *Older drivers, the age factor in traffic safety* (DOT HS 807 402). Springfield, Va.: National Technical Information Service.

[c] Yanik, A. J. (1985). *What accident data reveal about elderly drivers* (SAE Technical Paper 851688). Warrendale, Pa.: Society of Automotive Engineers.

Type of motor vehicle

The types of vehicles listed in the table below are classified by body style, not by vehicle use. The truck or truck tractor category includes noncommercial vans, light trucks and pick-ups as well as commercial trucks.

In 1989, passenger cars comprised 75 per cent of the registered vehicles and were involved in less than their share of the fatal accidents (54 per cent). Trucks and motorcycles have the opposite experience from that of passenger cars. Trucks comprised 23 per cent of the vehicles registered and were involved in 39 per cent of the fatal accidents. Motorcycles, motor scooters, and motor bikes comprised 2 per cent of the registrations and were involved in 5 per cent of the fatal accidents.

Types of Motor Vehicles Involved in Accidents, 1989

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Type of Vehicle	In Fatal Accidents		In All Accidents		Per Cent of Total Vehicle Registrations[a]	No. of Occupant Fatalities
	Number	%	Number	%		
All Types	**61,800**	**100.0%**	**22,800,000**	**100.0%**	**100.0%**	**38,600[b]**
Passenger cars	33,100	53.5	15,310,000	67.1	74.6	23,800
Trucks	24,000	38.8	6,530,000	28.6	22.6	10,700
Truck or truck tractor	*15,200*	*24.6*	*5,250,000*	*23.0*	*21.8*	(c)
Truck tractor and semi-trailer	*6,900*	*11.1*	*840,000*	*3.7*	*0.8*	(c)
Other truck combinations	*1,900*	*3.1*	*440,000*	*1.9*		(c)
Farm tractors, equipment	100	0.2	12,000	0.1	(d)	80
Taxicabs	100	0.2	8,000	(e)	0.1	50
Buses, commercial	200	0.3	61,000	0.3	0.1	20
Buses, school	100	0.2	58,000	0.3	0.3	30
Motorcycles	3,000	4.8	200,000	0.9	2.3	3,000
Motor scooters, motor bikes	100	0.2	11,000	(e)		100
Other[f]	1,100	1.8	610,000	2.7	(c)	820

Source: Based on reports from six state traffic authorities. Vehicle registrations based on data from Federal Highway Administration and International Taxicab Association. Procedures for estimating certain types of accidents were changed for the 1990 edition and are not comparable to those in previous editions.

[a] Percentage figures are based on numbers of vehicles and do not reflect miles traveled or place of travel, both of which affect accident experience.

[b] In addition to these occupant fatalities, there were 7,200 pedestrian, 1,000 pedalcyclist, and 100 other deaths.

[c] Data not available.

[d] Not included in total vehicle registrations; estimated tractors—4,410,000.

[e] Less than 0.05.

[f] Includes fire equipment, ambulances, special vehicles, other.

Motorcycles

The number of registered motorcycles in the U.S. totaled about 4,376,000 in 1989, down from approximately 5,800,000 in the early 1980s. Motorcycles accounted for only about 2 per cent of the total 193,045,000 vehicle registrations in 1989, however, motorcycles were overrepresented in the distribution of fatalities by type of vehicle. Of the 38,600 occupant deaths in motor-vehicle accidents in 1989, about 3,100 (8 per cent) were motorcycle riders. There were about 340,000 disabling injuries in motorcycle accidents in 1989.

When a motorcycle is involved in an accident, the rider's chances of being injured or killed are greater than if the operator were riding in a vehicle which afforded more protection. The 1989 mileage death rate for motorcycle riders is estimated to be about 29 occupant deaths per 100,000,000 miles of motorcycle travel, about 17 times the mileage death rate for occupants of other types of vehicles (passenger autos, trucks, buses, etc.). The rate for other vehicles is about 1.7 occupant deaths per 100,000,000 vehicle miles of travel.

Occupant protection requirements for motorcyclists vary by state. Currently only three states, Colorado, Illinois, and Iowa, have no requirements for safety helmet usage. Twenty-five other states require helmet usage only for those under a specific age, typically 18, only for passengers or require possession but not usage. Twenty-two states and the District of Columbia require usage by all riders.

Eye protection is also required by 35 states and the District of Columbia. In most of these states, exceptions are made if the motorcycle is equipped with a windscreen.

Pedestrians

More than half of all pedestrian deaths and injuries occur when pedestrians cross or enter streets. More than one third of these occur between intersections, but the proportion varies for persons of different ages. These and other actions are shown in the table below.

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Deaths and Injuries of Pedestrians by Age and Action, 1988

Actions	Age of Persons Killed or Injured								
	ALL AGES	Under 5	5-9	10-14	15-19	20-24	25-44	45-64	65 and Over
All Actions	*100.0%*	*7.3%*	*17.0%*	*11.2%*	*10.6%*	*9.1%*	*26.1%*	*11.0%*	*7.7%*
Total Pedestrians	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Crossing or entering	57.8	63.4	70.6	64.4	51.0	47.2	48.3	56.6	70.1
—at intersection	*23.3*	*9.4*	*17.2*	*25.2*	*24.3*	*21.9*	*23.0*	*30.1*	*38.6*
—between intersections	*34.5*	*54.0*	*53.4*	*39.2*	*26.7*	*25.3*	*25.3*	*26.5*	*31.5*
Walking in roadway	9.7	2.2	2.8	7.5	13.6	12.0	13.9	11.9	10.0
—with traffic	*6.2*	*0.9*	*1.6*	*4.7*	*8.8*	*8.4*	*9.9*	*6.2*	*4.8*
—against traffic	*3.5*	*1.3*	*1.2*	*2.8*	*4.8*	*3.6*	*4.0*	*5.7*	*5.2*
Standing in roadway	5.1	2.4	0.9	2.4	7.1	8.9	7.7	6.3	3.3
Pushing or working on vehicle in roadway	2.3	0.4	0.2	0.5	2.2	6.1	4.0	3.1	1.0
Other working in roadway	1.8	0.0	0.1	0.1	1.0	2.7	3.7	3.4	0.6
Playing in roadway	3.4	12.5	7.6	6.5	2.2	0.7	0.5	0.3	0.2
Other in roadway	12.6	14.0	15.5	13.5	13.7	13.0	11.7	10.3	7.5
Not in roadway	7.3	5.1	2.3	5.1	9.2	9.4	10.2	8.1	7.3

Source: Based on 1988 reports of deaths and injuries from nine state traffic authorities.

Pedalcycle accidents

Since 1940, the number of pedalcycle-motor-vehicle deaths has increased about 33 per cent. The number of pedalcycles in use has increased thirteenfold so that the death rate (number of deaths per 100,000 pedalcycles in use) is one tenth the rate in 1940. However, the proportion of deaths occurring to young adults and adults has steadily increased since 1960.

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Pedalcycle Rates and Deaths by Age, 1940-1989

Year	Pedalcycles[a] (millions)	Deaths	Death Rate[b]	Per Cent of Deaths by Age			
				All Ages	0-14	15-24	25 & Over
1940	7.8	750	9.59	100%	48	39	13
1945	9.0	500	5.55	100%	56	22	22
1950	13.8	440	3.18	100%	82	9	9
1955	23.1	410	1.78	100%	71	12	17
1960	28.2	460	1.63	100%	78	9	13
1965	38.8	680	1.75	100%	64	18	18
1970	56.5	780	1.38	100%	66	15	19
1975	95.0	1,000	1.05	100%	49	28	23
1980	82.3	1,200	1.46	100%	35	36	29
1981	84.3	1,200	1.42	100%	36	35	29
1982	84.1	1,100	1.31	100%	35	27	38
1983	85.8	1,100	1.28	100%	40	29	31
1984	88.6	1,100	1.24	100%	39	27	34
198	92.7	1,100	1.19	100%	49	24	27
1986	97.0	1,100	1.13	100%	32	35	33
1987	100.2	1,000[c]	1.00[c]	100%	41[c]	27[c]	32[c]
1988	100.7	900	0.89	100%	35	24	41
1989	100.6	1,000	0.99	100%	32	22	46

Source: National Center for Health Statistics, state traffic authorities and National Safety Council estimates.

[a] Pedalcycles in use for a given year is the ten-year total (that year and the previous nine years) of domestic production plus imports less exports.

[b] Deaths per 100,000 pedalcycles in use.

[c] Data for 1987 and later are not comparable to prior years due to changes in estimating procedures.

Motor-vehicle deaths on major holidays

Looking at all six holiday periods together, actual immediate deaths during the three-year period, 1987-1989, were slightly lower than would have occurred during similar nonholiday periods. For different times of the year, however, there is much variation in holiday fatalities compared to nonholidays. During the Summer holidays, Memorial Day, Fourth of July, and Labor Day, fatalities over the three-year period were 8 per cent higher than normal. During Winter holidays, Christmas and New Year's, fatalities were 7 per cent lower than normal; Thanksgiving was 12 per cent lower.

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Year	Memorial Day		Fourth of July		Labor Day		Thanksgiving		Christmas		New Year's	
	Immed. Deaths[a]	Total Deaths	Immed. Deaths[a]	Total Deaths	Immed. Deaths[a]	Total Deaths	Immed. Deaths[a]	Total Deaths	Immed. Deaths[a]	Total Deaths	Immed. Deaths[a]	Total Deaths
1977	456 (3)[b]	610	574 (3)[b]	770	469 (3)[b]	630	498 (4)[b]	620	390 (3)[b]	520	338 (3)[b]	450
1978	542 (3)	720	712 (4)	890	559 (3)	750	562 (4)	700	456 (3)	610	370 (3)	490
1979	508 (3)	680	164 (1)	250	519 (3)	690	475 (4)	590	693 (4)	870	493 (4)	620
1980	447 (3)	600	463 (3)	620	531 (3)	710	522 (4)	650	502 (4)	630	463 (4)	580
1981	420 (3)	560	578 (3)	770	473 (3)	630	442 (4)	550	354 (3)	470	338 (3)	450
1982	341 (3)	460	470 (3)	630	492 (3)	660	433 (4)	540	346 (3)	460	282 (3)	380
1983	437 (3)	580	447 (3)	600	480 (3)	640	400 (4)	500	238 (3)	320	274 (3)	370
1984	378 (3)	500	. . . (c)	. . .	451 (3)	600	402 (4)	500	537 (4)	670	366 (4)	460
1985	411 (3)	550	492 (4)	620	439 (3)	590	390 (4)	490	168 (2)	240	202 (2)	290
1986	435 (3)	580	450 (3)	600	487 (3)	650	443 (4)	550	380 (4)	480	356 (4)	480
1987	416 (3)	550	415 (3)	550	453 (3)	600	503 (4)	630	389 (4)	490	375 (4)	470
1988	404 (3)	540	463 (3)	620	422 (3)	560	454 (4)	570	386 (3)	510	317 (3)	420
1989	441 (3)	590	550 (4)	690	431 (3)	580	406 (4)	510	372 (3)	500	289 (3)	390

Source: Immediate deaths, press associations; total deaths, National Safety Council estimates.

[a] Immediate deaths are those which occurred by 11:59 p.m. of the last day of the holiday period. Total deaths include immediate deaths and an estimate of delayed deaths—those that occur within twelve months after the accident.

[b] Figures in parentheses are the number of full days in each holiday period. In addition, deaths that occur after 6:00 p.m. on the preceding day, are charged to the holiday.

[c] One-day holiday—no estimate made.

Milestones in motor-vehicle deaths

The world's first motor-vehicle death probably occurred in London, England, on August 17, 1896. The first motor-vehicle death in the United States reportedly occurred in New York City on September 14, 1899.

Since the first motor-vehicle death in the United States, nearly 2,800,000 persons have died in motor-vehicle accidents through the end of 1989. Based on historical figures, the 1,000,000th motor-vehicle death occurred in 1952 and the 2,000,000th occurred in 1974.

If the current annual trend in motor-vehicle deaths continues, the 3,000,000th death will probably occur in 1993 or 1994.

Residence of driver

According to 1989 data from four state traffic authorities, about 91 per cent of the drivers involved in fatal accidents were residents of the state in which the accident occurred; 72 per cent of them were local residents (less than 25 miles from home), and 19 per cent resided elsewhere in the state. About 95 per cent of the drivers in all accidents and injury accidents were residents of the state where the accident occurred.

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Residence of Driver in Motor-Vehicle Traffic Accidents, 1989

Residence	Fatal Accidents	Injury Accidents	All Accidents
Total	**100.0%**	**100.0%**	**100.0%**
Resident of state in which accident happened	90.5	95.0	94.7
Local resident[a]	*72.0*	*84.6*	*84.5*
Residing elsewhere in the state	*18.5*	*10.4*	*10.2*
Nonresident of state	9.5	5.0	5.3

Source: Based on reports from four state traffic authorities.

[a] Less than 25 miles from home.

Nations

Death totals of different nations must be compared cautiously because of differences in the volume and kinds of traffic, numbers of vehicles, population density, definitions of deaths, and other factors. (Certain definition differences are stated in the footnote.) The population rates shown provide one basis for adjustment but are not as useful as rates based on mileage, which are not available for all countries. The ratios of population to vehicles indicate the relative mobility or dependence of the population on the motor vehicle as a means of transportation.

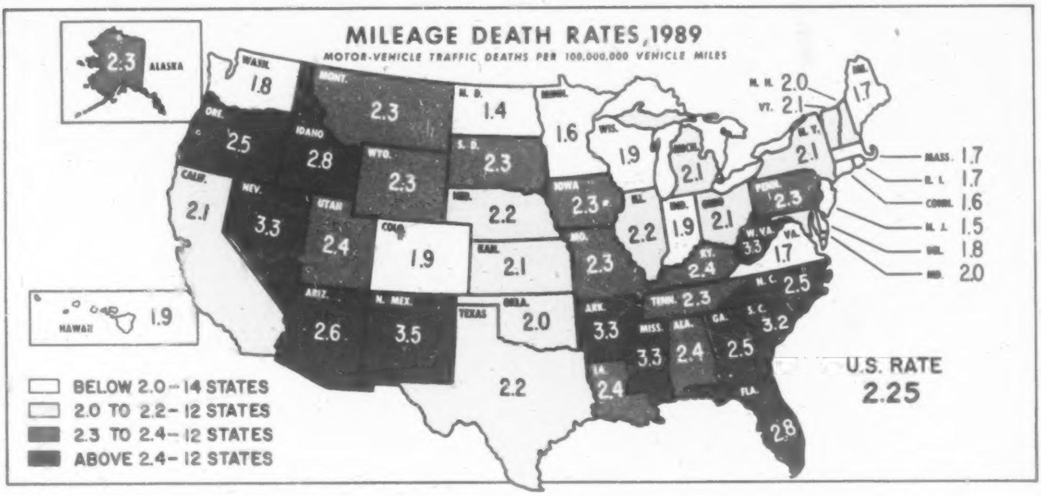
Motor-Vehicle Deaths, Rates, and Vehicle Registrations by Nation

	Motor-Vehicle Traffic Deaths			1988 Vehicle Registrations			
Nation	**Year**	**Number**	**Rate**[a]	**All Vehicles**	**Pop. Per Veh.**	**Passenger Cars**	**Pop. Per Car**
Syrian Arab Republic	1985	176	1.7	...	...	...	...
Hong Kong	1987	283	5.0	323,630	18	195,326	29
Chile	1987	879	7.0	925,223	14	618,496	21
Thailand	1987	4,441	8.3	2,222,825	25	815,825	67
Argentina	1985	2,628	8.6	5,600,000	5.7	4,186,440	7.8
Dominican Republic	1985	557	8.9	...	...	...	...
England, Wales	1988	4,470	8.9	...	...	...	...
Singapore	1987	233	8.9	368,815	7.2	251,414	11
Sweden	1987	764	9.1	3,764,043	2.2	3,482,656	2.4
Uruguay	1986	286	9.4	250,000	67	170,000	99
Netherlands	1987	1,397	9.5	5,790,000	2.5	5,251,000	2.8
Israel	1986	419	9.7	837,000	5.3	696,000	6.4
Norway	1987	405	9.7	1,935,828	2.2	1,621,955	2.6
Czechoslovakia	1988	1,643	10.5	3,460,678	4.5	2,999,987	6.3
Paraguay	1986	241	10.6	...	...	...	...
Finland	1987	537	10.9	2,034,166	2.5	1,811,300	2.8
Japan	1988	13,420	11.0	52,450,155	2.3	30,776,243	4.0
Scotland	1988	560	11.0	...	...	...	...
East Germany	1988	1,846	11.1	3,882,538	4.3	3,600,450	4.6
Bulgaria	1987	1,107	12.3	1,284,400	7.0	1,138,400	7.9
Costa Rica	1988	352	12.3	269,059	11	150,000	19
Ireland	1987	444	12.5	953,693	3.9	749,459	5.0
West Germany	1988	7,905	12.9	31,036,440	1.9	29,190,322	2.1
Denmark	1988	723	14.1	1,897,784	2.7	1,596,116	4.3
Poland	1988	5,440	14.4	5,520,160	7.0	4,519,094	8.5
Switzerland	1988	957	14.5	3,207,421	2.0	2,761,282	2.3
Northern Ireland	1988	230	14.6	...	...	...	...
Spain	1985	5,670[b]	14.7	12,860,828	3.1	10,787,424	3.7
Yugoslavia	1987	3,657	15.6	4,077,500	5.8	3,200,000	7.4
Canada	1987	4,180[c]	16.3	15,860,000	1.6	11,900,000	2.1
Italy	1986	9,329[d]	16.3	23,500,000	2.3	25,480,000	2.4
Hungary	1988	1,811	17.1	2,012,236	5.3	1,789,562	5.9
Panama	1987	388	17.1	...	...	...	...
Ecuador	1987	1,729	17.4	220,000	48	60,000	175
Puerto Rico	1986	618	17.6	1,518,544	2.2	1,294,904	25
France	1988	10,165[e]	18.2	25,342,000	2.2	22,370,000	2.5
Kuwait	1987	343	18.3	578,500	3.4	464,000	4.2
Australia	1988	3,078	18.6	9,221,100	1.7	7,243,600	2.2
Greece	1987	1,869	18.7	2,215,923	4.5	1,507,952	6.7
Austria	1988	1,465	19.3	3,457,794	2.2	2,784,792	3.7
United States	**1987**	**47,297**[c]	**19.4**	**184,396,732**	**1.3**	**43,145,037**	**1.8**
Belgium	1986	2,057[d]	20.9	3,972,297	2.5	3,573,344	3.8
New Zealand	1986	762	23.2	1,870,000	1.8	1,555,000	2.2
Portugal	1988	2,824	27.5	1,745,000	5.9	1,340,000	7.6

Source: Motor-vehicle traffic deaths—World Health Organization. Vehicle registrations—Motor Vehicle Manufacturers Association of the U.S., Inc., *Motor Vehicle Facts and Figures, 1990 Edition.* Used with permission.

[a] Deaths per 100,000 population.

DEATH DEFINITION: In general, deaths are included if they occur within thirty days after the accident, but other time periods are as follows: [b]24 hours, [c]one year, [d]at accident scene only, [e]three days.



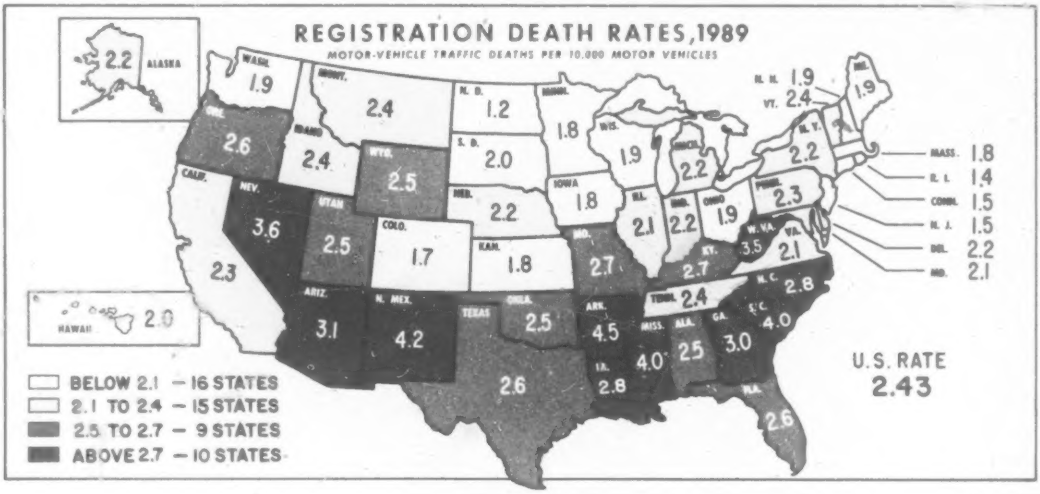
MILEAGE DEATH RATES, 1989

MOTOR-VEHICLE TRAFFIC DEATHS PER 100,000,000 VEHICLE MILES

ALASKA 2.3
WASH. 1.8
MONT. 2.3
N. D. 1.4
MINN. 1.6
ORE. 2.5
IDAHO 2.8
WYO. 2.3
S. D. 2.3
WIS. 1.9
MICH. 2.1
N. Y. 2.1
N. H. 2.0
VT. 2.1
ME. 1.7
MASS. 1.7
R. I. 1.7
CONN. 1.6
N. J. 1.5
DEL. 1.8
MD. 2.0
CALIF. 2.1
NEV. 3.3
UTAH 2.4
COLO. 1.9
NEB. 2.2
KAN. 2.1
IOWA 2.3
ILL. 2.2
IND. 1.9
OHIO 2.1
PENN. 2.3
W. VA. 3.3
VA. 1.7
KY. 2.4
MO. 2.3
TENN. 2.3
N. C. 2.5
S. C. 3.2
ARIZ. 2.6
N. MEX. 3.5
OKLA. 2.0
TEXAS 2.2
ARK. 3.3
MISS. 3.3
ALA. 2.4
GA. 2.5
LA. 2.4
FLA. 2.8
HAWAII 1.9

☐ BELOW 2.0 – 14 STATES
☐ 2.0 TO 2.2 – 12 STATES
▨ 2.3 TO 2.4 – 12 STATES
■ ABOVE 2.4 – 12 STATES

U.S. RATE
2.25



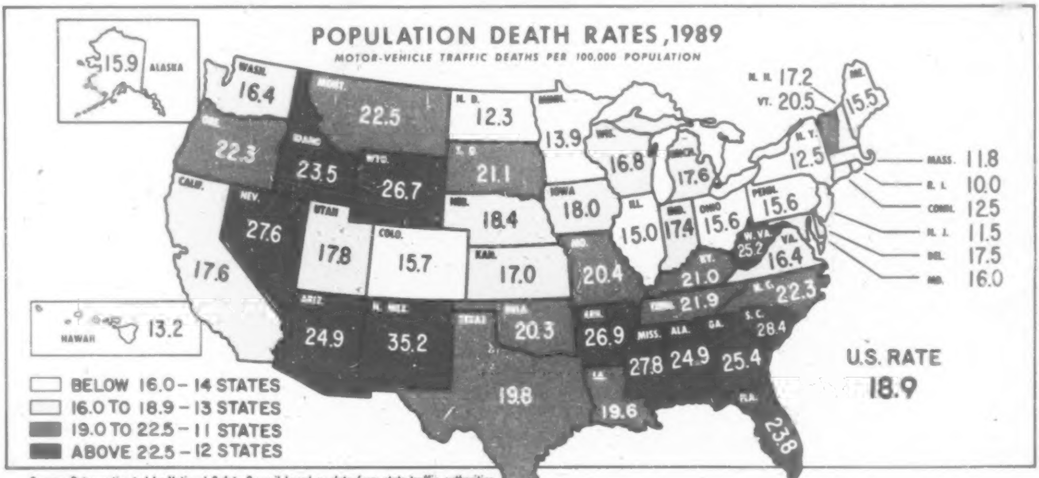
REGISTRATION DEATH RATES, 1989

MOTOR-VEHICLE TRAFFIC DEATHS PER 10,000 MOTOR VEHICLES

ALASKA 2.2
WASH. 1.9
MONT. 2.4
N. D. 1.2
MINN. 1.8
ORE. 2.6
IDAHO 2.4
WYO. 2.5
S. D. 2.0
WIS. 1.9
MICH. 2.2
N. Y. 2.2
N. H. 1.9
VT. 2.4
ME. 1.9
MASS. 1.8
R. I. 1.4
CONN. 1.5
N. J. 1.5
DEL. 2.2
MD. 2.1
CALIF. 2.3
NEV. 3.6
UTAH 2.5
COLO. 1.7
NEB. 2.2
KAN. 1.8
IOWA 1.8
ILL. 2.1
IND. 2.2
OHIO 1.9
PENN. 2.3
W. VA. 3.5
VA. 2.1
KY. 2.7
MO. 2.7
TENN. 2.4
N. C. 2.8
S. C. 4.0
ARIZ. 3.1
N. MEX. 4.2
OKLA. 2.5
TEXAS 2.6
ARK. 4.5
MISS. 4.0
ALA. 2.5
GA. 3.0
LA. 2.8
FLA. 2.6
HAWAII 2.0

☐ BELOW 2.1 – 16 STATES
☐ 2.1 TO 2.4 – 15 STATES
▨ 2.5 TO 2.7 – 9 STATES
■ ABOVE 2.7 – 10 STATES

U.S. RATE
2.43



POPULATION DEATH RATES, 1989

MOTOR-VEHICLE TRAFFIC DEATHS PER 100,000 POPULATION

ALASKA 15.9
WASH. 16.4
MONT. 22.5
N. D. 12.3
MINN. 13.9
ORE. 22.3
IDAHO 23.5
WYO. 26.7
S. D. 21.1
WIS. 16.8
MICH. 17.6
N. Y. 12.5
N. H. 17.2
VT. 20.5
ME. 15.5
MASS. 11.8
R. I. 10.0
CONN. 12.5
N. J. 11.5
DEL. 17.5
MD. 16.0
CALIF. 17.6
NEV. 27.6
UTAH 17.8
COLO. 15.7
NEB. 18.4
KAN. 17.0
IOWA 18.0
ILL. 15.0
IND. 17.4
OHIO 15.6
PENN. 15.6
W. VA. 25.2
VA. 16.4
KY. 21.0
MO. 20.4
TENN. 21.9
N. C. 22.3
S. C. 28.4
ARIZ. 24.9
N. MEX. 35.2
OKLA. 20.3
TEXAS 19.8
ARK. 26.9
MISS. 27.8
ALA. 24.9
GA. 25.4
LA. 19.6
FLA. 23.8
HAWAII 13.2

☐ BELOW 16.0 – 14 STATES
☐ 16.0 TO 18.9 – 13 STATES
▨ 19.0 TO 22.5 – 11 STATES
■ ABOVE 22.5 – 12 STATES

U.S. RATE
18.9

Source: Rates estimated by National Safety Council based on data from state traffic authorities, National Center for Health Statistics, Federal Highway Administration, and the U. S. Census Bureau.

Motor-Vehicle Deaths by State, 1986-1989

(Population Death Rates for 1989 by place of accident are shown on page 68)

State	Motor-Vehicle *Traffic* Deaths (Place of Accident)				*Total* Motor-Vehicle Deaths[a] (Place of Residence)			
	Number		Mileage Rate[b]		Number		Population Rate[b]	
	1989	1988	1989	1988	1987[c]	1986	1987	1986
Total U.S.[a]	**46,900**	**48,900**	**2.3**	**2.4**	**48,290**	**47,865**	**19.8**	**19.9**
Alabama	1,025	1,023	2.4	2.6	1,185	1,192	29.0	29.4
Alaska	84	97	2.3	2.5	90	102	17.1	19.2
Arizona	884	944	2.6	2.8	925	956	27.3	29.2
Arkansas	648	610	3.3	3.2	658	604	27.6	25.2
California	5,105	5,381	2.1	2.2	5,774	5,523	20.9	20.5
Colorado	522	497	1.9	1.8	615	638	18.7	19.5
Connecticut	406	486	1.6	1.9	464	457	14.5	14.3
Delaware	118	165	1.8	2.6	152	152	23.6	24.0
Dist. of Columbia	75	63	2.2	1.9	82	52	13.2	8.3
Florida	3,016	3,090	2.8	2.9	2,805	2,778	23.3	23.8
Georgia	1,632	1,660	2.5	2.7	1,618	1,557	26.0	25.5
Hawaii	147	149	1.9	2.0	134	115	12.4	10.8
Idaho	238	257	2.8	3.2	263	271	26.4	27.0
Illinois	1,748	1,862	2.2	2.4	1,835	1,759	15.8	15.2
Indiana	973	1,104	1.9	2.2	1,127	1,082	20.4	19.7
Iowa	511	556	2.3	2.5	508	462	17.9	16.2
Kansas	426	483	2.1	2.3	534	549	21.6	22.3
Kentucky	782	840	2.4	2.7	883	849	23.7	22.8
Louisiana	857	923	2.4	2.7	867	983	19.4	21.8
Maine	190	256	1.7	2.2	217	205	18.3	17.5
Maryland	750	794	2.0	2.1	815	794	18.0	17.8
Massachusetts	700	726	1.7	1.7	748	811	12.8	13.9
Michigan	1,633	1,704	2.1	2.2	1,730	1,738	18.8	19.0
Minnesota	605	615	1.6	1.7	601	631	14.2	15.0
Mississippi	728	720	3.3	3.3	812	783	30.9	29.8
Missouri	1,052	1,103	2.3	2.4	1,085	1,159	21.3	22.9
Montana	181	198	2.3	2.4	223	228	27.6	27.9
Nebraska	296	261	2.2	1.9	296	295	18.6	18.5
Nevada	307	286	3.3	3.2	244	220	24.2	22.8
New Hampshire	190	168	2.0	1.8	174	167	16.5	16.3
New Jersey	890	1,051	1.5	1.8	1,094	1,090	14.3	14.3
New Mexico	538	487	3.5	3.2	525	506	35.0	34.2
New York	2,239	2,237	2.1	2.2	2,495	2,263	14.0	12.7
North Carolina	1,464	1,587	2.5	2.7	1,577	1,712	24.6	27.0
North Dakota	81	104	1.4	1.8	113	118	16.8	17.4
Ohio	1,700	1,748	2.1	2.1	1,831	1,649	17.0	15.3
Oklahoma	655	641	2.0	2.0	669	737	20.4	22.3
Oregon	630	677	2.5	2.7	642	643	23.6	23.8
Pennsylvania	1,877	1,932	2.3	2.4	2,069	2,009	17.3	16.9
Rhode Island	100	125	1.7	2.1	140	141	14.2	14.5
South Carolina	996	1,033	3.2	3.3	1,087	1,047	31.7	31.0
South Dakota	151	147	2.3	2.2	156	135	22.0	19.1
Tennessee	1,081	1,266	2.3	2.9	1,298	1,268	26.7	26.4
Texas	3,361	3,395	2.2	2.2	3,330	3,715	19.8	22.3
Utah	303	297	2.4	2.2	307	328	18.3	19.7
Vermont	116	128	2.1	2.3	112	96	20.4	17.7
Virginia	999	1,069	1.7	1.9	1,075	1,122	18.2	19.4
Washington	781	785	1.8	1.9	865	810	19.1	18.1
West Virginia	468	460	3.3	3.3	503	447	26.5	23.3
Wisconsin	817	813	1.9	1.9	831	765	17.3	16.0
Wyoming	127	155	2.3	2.7	107	152	21.8	30.0

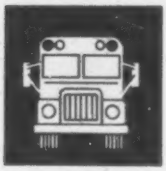
Source: Motor-Vehicle *Traffic* Deaths from state traffic authorities; *Total* Motor-Vehicle Deaths from National Center for Health Statistics (see also p. 18).

[a] Includes both traffic and nontraffic motor-vehicle deaths. See definitions of motor-vehicle traffic and motor-vehicle nontraffic accidents on page 105.

[b] The mileage death rate is deaths per 100,000,000 vehicle miles; the population death rate is deaths per 100,000 population. Mileage death rates are National Safety Council estimates. Population rates are from the National Center for Health Statistics.

[c] Latest year available. See page 21 for comparability.

School bus accidents, 1988-1989



School bus transportation accidents killed an estimated 100 persons nationwide in the school year 1988-1989, including 35 pupils, 5 bus drivers and 60 other persons. These national estimates are projected from data received from 40 states and the District of Columbia.

Of the pupils killed, about 10 were passengers on school buses and 25 were pedestrians either approaching or leaving a loading zone. More than half of the pupil pedestrian victims were struck by the school bus which they were entering or leaving.

Injuries in school bus related accidents totaled about 11,800 of which 7,300 were students.

The table on page 71 shows certain details of the injury and property damage accidents which occurred in school year 1988-1989 or calendar year 1989. Types of school bus accidents not itemized include an estimated 275 pedestrian, 105 bicycle, and 5 railroad accidents. About nine out of ten accidents involved property damage with no injuries.

Characteristics of school bus transportation

Interpretation of school bus accident data is complicated by the many variations between state operations, by lack of standard definitions of terms, and by lack of comparable reporting by states.

The state totals in the table on page 71 are shown as reported by the states. The U.S. totals are National Safety Council estimates developed by inflating the total from reporting states to compensate for the portion from missing states. State figures are weighted based on the number of pupils transported in that state.

Terms and reporting classifications

Vehicles. Included are regular school buses and other nonfamily-owned vehicles used in transporting pupils.

Annual bus mileage. Total mileage includes deadheading (traveling with no pupil passengers) and extracurricular activity trips. Data from six states indicate that deadheading may average about 23 per cent of total mileage, ranging from practically none in some states, up to one fourth of the total bus mileage in others, depending on arrangements for driver and bus storage. Extracurricular mileage, based on 17 states, is indicated to be about 11 per cent of total mileage, also with a wide range among states. Such mileage includes athletic and field trips, shuttle service, and so on.

Pupils transported daily. A pupil is counted only once for each day transported, although usually two one-way trips or more are made daily.

Pupil passenger miles and average bus occupancy. Total pupil passenger miles cannot be computed directly from total bus mileage and pupils transported. Reports indicate average bus occupancy as upwards of 35 pupils, but it may rise or fall several times on a single route trip, as a bus in some instances may serve several schools along the route. Average occupancy for all bus mileage, including deadheading, may be only about 40 per cent of capacity. The National Safety Council estimate of total pupil passenger miles for 1989 is 80.6 billion.

Route trip. A route trip may represent (1) a one-way trip from the point where the first pupil boards the bus to the point where the last pupil leaves it, (2) a round trip, or (3) several separate trips ending at the same school(s). Miles per route trip reported for 17 states ranged from 15 to 75, averaging 47 miles. Pupils carried per route trip ranged from 20 to 75, averaging 52 pupils. Route trips per bus ranged from 1 to 3, averaging 1.8 trips daily.

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School Bus Accidents by State, 1988-1989

State	Total Vehicles	Annual Bus Mileage (000)	Pupils Transp. Daily	Type of School Bus Accident				Prop. Damage Only Acc.	Persons Injured	
				Total[a]	Other Veh.	Non-coll.	Fixed Obj.		Total	Pupils
U.S.[b]	**380,000**	**4,000,000**	**22,000,000**	**29,000**	**23,000**	**900**	**2,700**	**27,000**	**11,800**	**7,300**
Alabama	...	...	...	...	...	...	...	...	...	...
Alaska	684	5,805	43,825	109	100	1	7	98	11	2
Arizona	4,700	38,794	224,721	233	211	4	9	175	164	53
Arkansas	4,107	33,098	273,270	256	253	2	0	230	25	25
California	20,066	272,632	970,000	2,502	1,556	186	252	1,974	1,024	669
Colorado	5,477	43,860	226,526	208	171	2	24	162	72	42
Connecticut	5,004	...	349,000	515	388	0	125	465	132	71
Delaware	1,283	16,673	82,862	117	111	1	3	95	73	54
Dist. of Col.	187	1,646	12,000	67	66	0	0	66	4	0
Florida	10,322	195,787	783,477	1,007	834	18	139	...	450	370
Georgia	8,878	95,175	867,979	710	493	0	108	...	221	165
Hawaii	...	...	...	...	...	...	...	...	...	...
Idaho	2,250	...	111,000	136	114	5	13	114	54	8
Illinois	...	...	...	...	...	...	...	...	...	...
Indiana	10,422	63,958	672,940	942	...	...	...	821	358	207
Iowa	6,999	61,230	280,777	448	296	16	115	397	87	38
Kansas	5,954	62,906	174,811	195	172	6	7	133	112	37
Kentucky	7,240	81,157	446,988	844	734	33	66	754	270	237
Louisiana	...	...	...	...	...	...	...	...	...	...
Maine	2,625	32,873	171,156	163	...	...	...	...	...	...
Maryland	5,382	90,421	453,021	1,163	1,020	10	123	1,017	285	156
Massachusetts	...	...	...	...	...	...	...	...	...	...
Michigan	...	...	...	...	...	...	...	...	...	...
Minnesota	11,594	124,547	659,751	826	786	6	16	655	281	102
Mississippi	5,298	42,740	389,553	391	347	25	19	371	22	20
Missouri	11,024	114,087	450,625	1,197	930	147	76	966	555	416
Montana	1,373	17,143	59,527	...	...	...	...	...	...	...
Nebraska	3,981	34,093	69,814	96	85	0	4	78	51	51
Nevada	1,045	14,720	59,957	291	189	3	75	253	46	37
New Hampshire	2,000	...	125,000	267	...	...	...	141	25	24
New Jersey	...	...	...	...	...	...	...	...	...	...
New Mexico	2,133	30,358	134,145	211	182	2	19	112	81	75
New York	35,000	181,000	2,000,000	556	459	0	25	...	666	487
North Carolina	13,146	122,243	685,386	855	729	53	2	556	178	50
North Dakota	1,908	25,426	49,690	6	5	0	1	...	...	...
Ohio	12,806	166,402	1,289,883	952	817	31	84	713	...	...
Oklahoma	6,706	58,750	297,377	279	253	0	9	238	67	41
Oregon	4,589	43,215	214,105	394	231	6	151	386	11	9
Pennsylvania	21,243	267,219	1,342,003	1,250	1,024	43	151	1,002	414	303
Rhode Island	...	...	...	...	...	...	...	...	...	...
South Carolina	5,674	66,727	436,676	418	355	9	44	399	473	358
South Dakota	1,685	18,353	44,469	56	37	3	10	55	34	33
Tennessee	6,715	65,393	544,904	735	387	8	183	622	216	142
Texas	29,069	254,771	1,035,943	1,643	1,439	7	49	1,073	1,164	419
Utah	...	...	...	...	...	...	...	...	...	...
Vermont	...	...	...	...	...	...	...	...	...	...
Virginia	9,965	88,855	750,902	960	870	1	68	808	344	219
Washington	6,627	74,084	375,519	371	348	2	14	249	216	66
West Virginia	2,953	40,736	262,878	674	...	...	...	657	42	28
Wisconsin	7,490	80,551	472,622	997	923	7	34	680	315	248
Wyoming	1,540	14,636	37,686	43	34	2	4	30	38	22

Source: National Safety Council survey of state departments of education and state traffic authorities. Most reports cover 1988-1989 school year or 1989 calendar year. U.S. totals are Council estimates for the calendar year 1989.

[a] Totals include additional accident types not shown separately.

[b] Procedures for estimating U.S. totals were revised for the 1985 edition. U.S. totals in this edition are not comparable to estimates prior to the 1985 edition.

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Motor-Vehicle Deaths and Rates, 1913-1989

Year	No. of Deaths	No. of Vehicles (millions)	Vehicle Miles (billions)	No. of Drivers (millions)	Death Rates		
					Per 10,000 Motor Vehicles	Per 100,000,000 Vehicle Miles	Per 100,000 Population
1913	4,200	1.3	(a)	2.0	33.38	(a)	4.4
1914	4,700	1.8	(a)	3.0	26.65	(a)	4.8
1915	6,600	2.5	(a)	3.0	26.49	(a)	6.6
1916	8,200	3.6	(a)	5.0	22.66	(a)	8.1
1917	10,200	5.1	(a)	7.0	19.93	(a)	10.0
1918	10,700	6.2	(a)	9.0	17.37	(a)	10.3
1919	11,200	7.6	(a)	12.0	14.78	(a)	10.7
1920	12,500	9.2	(a)	14.0	13.53	(a)	11.7
1921	13,900	10.5	(a)	16.0	13.25	(a)	12.9
1922	15,300	12.3	(a)	19.0	12.47	(a)	13.9
1923	18,400	15.1	85	22.0	12.18	21.65	16.5
1924	19,400	17.6	104	26.0	11.02	18.65	17.1
1925	21,900	20.1	122	30.0	10.89	17.95	19.1
1926	23,400	22.2	141	33.0	10.54	16.59	20.1
1927	25,800	23.3	158	34.0	11.07	16.33	21.8
1928	28,000	24.7	173	37.0	11.34	16.18	23.4
1929	31,200	26.7	197	40.0	11.69	15.84	25.7
1930	32,900	26.7	206	40.0	12.32	15.97	26.7
1931	33,700	26.1	216	39.0	12.91	15.60	27.2
1932	29,500	24.4	200	36.0	12.09	14.75	23.6
1933	31,363	24.2	201	35.0	12.96	15.60	25.0
1934	36,101	25.3	216	37.0	14.27	16.71	28.6
1935	36,369	26.5	229	39.0	13.72	15.88	28.6
1936	38,089	28.5	252	42.0	13.36	15.11	29.7
1937	39,643	30.1	270	44.0	13.19	14.68	30.8
1938	32,582	29.8	271	44.0	10.93	12.02	25.1
1939	32,386	31.0	285	46.0	10.44	11.35	24.7
1940	34,501	32.5	302	48.0	10.63	11.42	26.1
1941	39,969	34.9	334	52.0	11.45	11.98	30.0
1942	28,309	33.0	268	49.0	8.58	10.55	21.1
1943	23,823	30.9	208	46.0	7.71	11.44	17.8
1944	24,282	30.5	213	45.0	7.97	11.42	18.3
1945	28,076	31.0	250	46.0	9.05	11.22	21.2
1946	33,411	34.4	341	50.0	9.72	9.80	23.9
1947	32,697	37.8	371	53.0	8.64	8.82	22.8
1948	32,259	41.1	398	55.0	7.85	8.11	22.1
1949	31,701	44.7	424	59.3	7.09	7.47	21.3
1950	34,763	49.2	458	62.2	7.07	7.59	23.0
1951	36,996	51.9	491	64.4	7.13	7.53	24.1
1952	37,794	53.3	514	66.8	7.10	7.36	24.3
1953	37,956	56.3	544	69.9	6.74	6.97	24.0
1954	35,586	58.6	562	72.2	6.07	6.33	22.1
1955	38,426	62.8	606	74.7	6.12	6.34	23.4
1956	39,628	65.2	631	77.9	6.07	6.28	23.7
1957	38,702	67.6	647	79.6	5.73	5.98	22.7
1958	36,981	68.8	665	81.5	5.37	5.56	21.3
1959	37,910	72.1	700	84.5	5.26	5.41	21.5
1960	38,137	74.5	719	87.4	5.12	5.31	21.2
1961	38,091	76.4	738	88.9	4.98	5.16	20.8
1962	40,804	79.7	767	92.0	5.12	5.32	22.0
1963	43,564	83.5	805	93.7	5.22	5.41	23.1
1964	47,700	87.3	847	95.6	5.46	5.63	25.0
1965	49,163	91.8	888	99.0	5.36	5.54	25.4
1966	53,041	95.9	930	101.0	5.53	5.70	27.1
1967	52,924	98.9	962	103.2	5.35	5.50	26.8
1968	54,862	103.1	1,016	105.4	5.32	5.40	27.5
1969	55,791	107.4	1,071	108.3	5.19	5.21	27.7
1970	54,633	111.2	1,120	111.5	4.92	4.88	26.8
1971	54,381	116.3	1,186	114.4	4.68	4.57	26.3
1972	56,278	122.3	1,268	118.4	4.60	4.43	26.9
1973	55,511	129.8	1,309	121.6	4.28	4.24	26.3
1974	46,402	134.9	1,290	125.6	3.44	3.59	21.8
1975	45,853	137.9	1,330	129.8	3.33	3.45	21.3
1976	47,038	143.5	1,412	133.9	3.28	3.33	21.6

See source and footnotes on page 73.

Motor-Vehicle Deaths and Rates, 1913-1989, Cont.

Year	No. of Deaths	No. of Vehicles (millions)	Vehicle Miles (billions)	No. of Drivers (millions)	Death Rates		
					Per 10,000 Motor Vehicles	Per 100,000,000 Vehicle Miles	Per 100,000 Population
1977	49,510	148.8	1,477	138.1	3.33	3.35	22.5
1978	52,411	153.6	1,548	140.8	3.41	3.39	23.6
1979	53,524	159.6	1,529	143.3	3.35	3.50	23.8
1980	53,172	161.6	1,521	145.3	3.29	3.50	23.4
1981	51,385	164.1	1,556	147.1	3.13	3.30	22.4
1982	45,779	165.2	1,592	150.3	2.77	2.88	19.7
1983	44,452	169.4	1,657	154.2	2.62	2.68	19.0
1984	46,263	171.8	1,718	155.4	2.69	2.69	19.6
1985	45,901	177.1	1,774	156.9	2.59	2.59	19.2
1986	47,865	181.4	1,835	159.5	2.63	2.60	19.9
1987	48,290	183.9	1,924	161.8	2.63	2.51	19.8
1988	48,900	189.0	2,026	162.9	2.59	2.41	19.9
1989	46,900	193.0	2,082	164.9	2.43	2.25	18.9
			Changes				
1979 to 1989	**−12%**	**+21%**	**+36%**	**+15%**	**−27%**	**−36%**	**−21%**
1988 to 1989	**− 4%**	**+ 2%**	**+ 3%**	**+ 1%**	**− 6%**	**− 7%**	**− 5%**

Source: Deaths from National Center for Health Statistics except 1964, 1988 (revised) and 1989 (preliminary), which are National Safety Council estimates based on data from state traffic authorities. See page 21 for comparability. Motor-vehicle registrations, mileage and drivers from Federal Highway Administration.

[a] Mileage data inadequate prior to 1923.

Estimating motor-vehicle accident costs

National Safety Council estimates[a] of the per case costs of motor-vehicle-related deaths, injuries, and property damage accidents may be used by a community or state to estimate the cost of motor-vehicle accidents that occurred in 1989 within its jurisdiction. Included are the four calculable economic loss components (see pages 2-3), which are wage loss, medical expense, insurance administration cost, and motor-vehicle property damage. The estimated 1989 cost per case of these items is given below.

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Death	**$290,000**
Nonfatal disabling injury	**$14,100**
Incapacitating injury	*$32,000*
Nonincapacitating evident injury	*$ 8,300*
Possible injury	*$ 2,600*
Property damage accident (including minor injuries)	**$3,000**

Cost-benefit analysis. The figures above are appropriate for measuring the economic loss to a community resulting from past motor-vehicle accidents. They should not be used, however, in computing the dollar value of future benefits due to traffic safety measures because they do not include the value of a person's natural desire to live longer or to protect the quality of one's life. That is, the economic loss estimates do not include what people are willing to pay for improved safety. Recent work has been done to create the necessary theoretical groundwork[b] and empirical valuation[c] of injury costs under the "willingness to pay" concept. These estimates should be used for cost-benefit analyses wherever feasible.

[a] National Safety Council. *Estimating the cost of accidents, 1989.* Chicago: Author, 1990.

[b] Miller, T. R. *Benefit-cost analyses of health and safety: conceptual and empirical issues.* Working paper, December 1986. Washington, DC: The Urban Institute.

[c] Rollins, J. B. and McFarland, W. F. Costs of motor vehicle accidents and injuries. In *Traffic Accident Analysis, Alcohol Involvement, and Evaluation of Highway Improvements,* Transportation Research Record 1068. Washington, DC: Transportation Research Board, National Research Council, 1986.

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Motor-Vehicle Deaths by Type of Accident, 1913-1989

Year	TOTAL DEATHS	Deaths from Collision with—							Deaths from Non-collision Accidents	Non-traffic Deaths[a]
		Pedestrians	Other Motor Vehicles	Railroad Trains	Street Cars	Pedalcycles	Animal-drawn Veh. or Animal	Fixed Objects		
1913	4,200	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1914	4,700	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1915	6,600	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1916	8,200	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1917	10,200	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1918	10,700	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1919	11,200	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1920	12,500	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1921	13,900	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1922	15,300	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1923	18,400	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(c)
1924	19,400	(b)	(b)	1,130	410	(b)	(b)	(b)	(b)	(c)
1925	21,900	(b)	(b)	1,410	560	(b)	(b)	(b)	(b)	(c)
1926	23,400	(b)	(b)	1,730	520	(b)	(b)	(b)	(b)	(c)
1927	25,800	10,820	3,430	1,830	520	(b)	(b)	(b)	(b)	(c)
1928	28,000	11,420	4,310	2,140	570	(b)	(b)	540	8,070	(c)
1929	31,200	12,250	5,400	2,050	530	(b)	(b)	620	9,380	(c)
1930	32,900	12,900	5,880	1,830	480	(b)	(b)	720	9,970	(c)
1931	33,700	13,370	6,820	1,710	440	(b)	(b)	870	9,570	(c)
1932	29,500	11,490	6,070	1,520	320	350	400	800	8,500	(c)
1933	31,363	12,840	6,470	1,437	318	400	310	900	8,680	(c)
1934	36,101	14,480	8,110	1,457	332	500	360	1,040	9,820	(c)
1935	36,369	14,350	8,750	1,587	253	450	250	1,010	9,720	(c)
1936	38,089	15,250	9,500	1,697	269	650	250	1,060	9,410	(c)
1937	39,643	15,500	10,320	1,810	264	700	200	1,160	9,690	(c)
1938	32,582	12,850	8,900	1,490	165	720	170	940	7,350	(c)
1939	32,386	12,400	8,700	1,330	150	710	200	1,000	7,900	(c)
1940	34,501	12,700	10,100	1,707	132	750	210	1,100	7,800	(c)
1941	39,969	13,550	12,500	1,840	118	910	250	1,350	9,450	(c)
1942	28,309	10,650	7,300	1,754	124	650	240	850	6,740	(c)
1943	23,823	9,900	5,300	1,448	171	450	160	700	5,690	(c)
1944	24,282	9,900	5,700	1,663	175	400	140	700	5,600	(c)
1945	28,076	11,000	7,150	1,703	163	500	130	800	6,600	(c)
1946	33,411	11,600	9,400	1,703	174	540	130	950	8,900	(c)
1947	32,697	10,450	9,900	1,736	102	550	150	1,000	8,800	(c)
1948	32,259	9,950	10,200	1,474	83	500	100	1,000	8,950	(c)
1949	31,701	8,800	10,500	1,452	56	550	140	1,100	9,100	838
1950	34,763	9,000	11,650	1,541	89	440	120	1,300	10,600	900
1951	36,996	9,150	13,100	1,573	46	390	100	1,400	11,200	966
1952	37,794	8,900	13,500	1,429	32	430	130	1,450	11,900	970
1953	37,955	8,750	13,400	1,506	26	420	120	1,500	12,200	1,026
1954	35,586	8,000	12,800	1,289	28	380	90	1,500	11,500	1,004
1955	38,426	8,200	14,500	1,490	15	410	90	1,600	12,100	989
1956	39,628	7,900	15,200	1,377	11	440	100	1,600	13,000	888
1957	38,702	7,850	15,400	1,376	13	460	80	1,700	11,800	1,016
1958	36,981	7,650	14,200	1,316	9	450	80	1,650	11,600	929
1959	37,910	7,850	14,900	1,202	6	480	70	1,600	11,800	948
1960	38,137	7,850	14,800	1,368	5	460	80	1,700	11,900	995
1961	38,091	7,650	14,700	1,267	5	490	80	1,700	12,200	1,065
1962	40,804	7,900	16,400	1,245	3	500	90	1,750	12,900	1,029
1963	43,564	8,200	17,600	1,385	10	580	80	1,900	13,800	990
1964	47,700	9,000	19,600	1,580	5	710	100	2,100	14,600	1,123
1965	49,163	8,900	20,800	1,556	5	680	120	2,200	14,900	1,113
1966	53,041	9,400	22,200	1,800	2	740	100	2,500	16,300	1,108
1967	52,924	9,400	22,000	1,620	3	750	100	2,350	16,700	1,165
1968	54,862	9,900	22,400	1,570	4	790	100	2,700	17,400	1,061
1969	55,791	10,100	23,700	1,495	2	800	100	3,900[d]	15,700[d]	1,155
1970	54,633	9,900	23,200	1,459	3	780	100	3,800	15,400	1,140
1971	54,381	9,900	23,100	1,378	2	800	100	3,800	15,300	1,015
1972	56,278	10,300	23,900	1,260	2	1,000	100	3,900	15,800	1,064
1973	55,511	10,200	23,600	1,194	2	1,000	100	3,800	15,600	1,164
1974	46,402	8,500	19,700	1,209	1	1,000	100	3,100	12,800	1,088
1975	45,853	8,400	19,550	979	1	1,000	100	3,130	12,700	1,033
1976	47,038	8,600	20,100	1,033	2	1,000	100	3,200	13,000	1,026

See source and footnotes on page 75.

Motor-Vehicle Deaths by Type of Accident, 1913-1989, Cont.

Year	TOTAL DEATHS	Deaths from Collision with—							Deaths from Non-collision Accidents	Non-traffic Deaths[a]
		Pedestrians	Other Motor Vehicles	Railroad Trains	Street Cars	Pedalcycles	Animal-drawn Veh. or Animal	Fixed Objects		
1977	49,510	9,100	21,200	902	3	1,100	100	3,400	13,700	1,053
1978	52,411	9,600	22,400	986	1	1,200	100	3,600	14,500	1,074
1979	53,524	9,800	23,100	826	1	1,200	100	3,700	14,800	1,271
1980	53,172	9,700	23,000	739	1	1,200	100	3,700	14,700	1,242
1981	51,385	9,400	22,200	668	1	1,200	100	3,600	14,200	1,189
1982	45,779	8,400	19,800	554	1	1,100	100	3,200	12,600	1,066
1983	44,452	8,200	19,200	520	1	1,100	100	3,100	12,200	1,024
1984	46,263	8,500	20,000	630	0	1,100	100	3,200	12,700	1,055
1985	45,901	8,500	19,900	538	2	1,100	100	3,200	12,600	1,079
1986	47,865	8,900	20,800	574	2	1,100	100	3,300	13,100	998
1987	48,290	7,500[e]	20,700	554	1	1,000[e]	100	13,200[e]	5,200[e]	993
1988	48,900	7,300	20,800	600	([c])	900	100	14,000	5,200	1,000
1989	46,900	7,200	19,900	700	([c])	1,000	100	13,100	4,900	1,000
				Changes in Deaths						
1979 to 1989 .	**–12%**	**([e])**	**–14%**	**–15%**	**...**	**([e])**	**0%**	**([e])**	**([e])**	**–21%**
1988 to 1989 .	**– 4%**	**–1%**	**– 4%**	**+17%**	**...**	**+11%**	**0%**	**–6%**	**–[illegible]**	**0%**

Source: Total deaths from National Center for Health Statistics except 1964 and 1988-1989, wh[illegible] are National Safety Council estimates (1989 preliminary, 1988 revised) based on data from state traffic authori[illegible]nd Federal Highway Administration. Most totals by type are estimated and may not add to the total deaths. [illegible]e page 21 for comparability.

[a] See definition on page 105. Nontraffic deaths are included in the appropriate accident type totals in the table; in 1987, 44 per cent of the specified nontraffic deaths were pedestrians.

[b] Insufficient data for approximations.

[c] Data not available.

[d] 1969 through 1986 totals are not comparable to previous years.

[e] Procedures and benchmarks for estimating deaths for certain types of accidents were changed for the 1990 edition. Estimates for 1987 and later years are not comparable to earlier years.

Trends in motor-vehicle deaths, 1979-1989

More progress was made in reducing motor-vehicle deaths during the 1980s than in any other decade. Motor-vehicle deaths declined by 12 per cent from 53,524 in 1979 to an estimated 46,900 in 1989. This decrease in deaths was achieved in spite of increases during the decade in drivers (+15 per cent), vehicles (+21 per cent), and miles driven (+36 per cent). The death rate per 10,000 registered vehicles fell 27 per cent from 3.35 to 2.43, and the death rate per 100,000,000 vehicle miles fell 36 per cent from 3.50 to 2.25, both the lowest rates on record. The death rate per 100,000 population declined by 21 per cent from 23.8 to 18.9, and is now lower than any time since the infancy of mass motor-vehicle travel in the early 1920s.

Despite increases in motor-vehicle deaths during the 1980s in the 25 to 44 year age group (+3 per cent) and the 65 and over age group (+22 per cent), death rates per 100,000 population declined for all age groups. Decreases in rates were greatest for the 15 to 24 year age group (–26 per cent) and least for the 65 and over age group (–1 per cent).

Contributing to the reduction in motor-vehicle deaths for the decade was increased emphasis on occupant protection and alcohol programs. Since 1984, when the first mandatory safety belt use law became effective in New York state, 35 states and the District of Columbia have passed such laws (two have since been rescinded). Estimated safety belt use nationwide has increased at least threefold, from less than 15 per cent early in the decade to about 46 per cent in 1988. Also during the 1980s, many states passed laws setting the minimum drinking age at 21 years old so that currently all states have such laws. Partially as a result, the number of alcohol-related fatal traffic accidents dropped from 57 per cent in 1982 to about 49 per cent in 1988.

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Motor-Vehicle Deaths by Type and Location, 1943-1989

Year	TOTAL DEATHS[a]	Mileage Death Rate[b]	Deaths from Collisions with—						Deaths from Non-collision Accidents
			Pedestrians	Other Motor Vehicles	Railroad Trains	Pedalcycles	All Other Vehicles	Fixed Objects	
				URBAN					
1943-1947 avg.	11,370	8.1	6,920	1,640	900	(c)	(c)	240	1,190
1948-1952 avg.	10,430	4.9	5,770	1,830	740	(c)	(c)	390	1,390
1953-1957 avg.	9,730	3.6	5,190	1,980	540	(c)	(c)	500	1,270
1958-1962 avg.	10,450	3.2	4,900	2,650	450	(c)	(c)	650	1,600
1963-1967 avg.	15,100	3.4	5,750	4,720	500	(c)	(c)	930	2,840
1968	17,360	3.4	6,500	5,500	470	(c)	(c)	1,200	3,300
1969	17,890	3.3	6,700	5,900	490	(c)	(c)	1,450[d]	3,000[d]
1970	17,520	3.0	6,600	5,800	480	340	3	1,400	2,900
1971	17,510	2.9	6,600	5,800	450	350	2	1,400	2,900
1972	18,210	2.7	6,800	5,900	320	600	2	1,900	2,600
1973	18,040	2.6	6,700	5,800	400	600	2	1,900	2,600
1974	16,100	2.3	5,700	5,400	400	600	1	1,900	2,100
1975	16,460	2.3	6,100	6,000	460	600	1	1,800	1,500
1976	16,750	2.1	5,900	6,000	500	550	2	1,800	2,000
1977	17,700	2.2	6,200	6,400	400	600	3	1,900	2,200
1978	18,600	2.2	6,100	6,500	400	800	1	2,100	2,700
1979	19,700	2.3	7,100	6,400	400	700	1	2,100	3,000
1980	19,500	2.2	7,000	6,800	300	800	1	1,900	2,700
1981	19,400	2.2	6,900	6,800	300	800	1	1,900	2,700
1982	17,300	1.9	6,200	6,100	200	700	1	1,700	2,400
1983	16,250	1.7	5,900	5,800	220	700	1	1,700	2,200
1984	17,130	1.7	6,200	6,400	230	700	0	1,800	1,800
1985	16,600	1.6	6,200	5,800	200	700	2	1,800	1,900
1986	17,300	1.6	6,700	6,800	100	800	2	1,800	1,100
1987	17,390	1.5	4,400[e]	7,000	150	400[e]	1	4,500[e]	900[e]
1988	17,300	1.4	3,900	7,300	200	300	(c)	4,800	800
1989	16,400	1.3	4,000	6,100	200	500	(c)	4,800	800
1988-89 Change	**–5%**	**–7%**	**+3%**	**–16%**	**0%**	**+67%**	...	**0%**	**0%**
				RURAL					
1943-1947 avg.	17,080	12.6	3,650	5,850	760	(c)	(c)	580	5,930
1948-1952 avg.	24,270	10.0	3,390	9,960	750	(c)	(c)	860	8,950
1953-1957 avg.	28,320	8.6	2,950	12,280	860	(c)	(c)	1,080	10,850
1958-1962 avg.	27,900	7.2	2,900	12,350	830	(c)	(c)	1,030	10,500
1963-1967 avg.	34,180	7.6	3,230	15,720	1,090	(c)	(c)	1,280	12,420
1968	37,500	7.5	3,400	16,900	1,100	(c)	(c)	1,500	14,100
1969	37,900	7.2	3,400	17,800	1,000	(c)	(c)	2,450[d]	12,700[d]
1970	37,120	6.8	3,300	17,400	980	440	100	2,400	12,500
1971	36,870	6.4	3,300	17,300	920	450	100	2,400	12,400
1972	38,150	6.5	3,500	18,000	950	400	100	2,000	13,200
1973	37,470	6.2	3,500	17,800	800	400	100	1,900	13,000
1974	30,300	5.2	2,800	14,300	800	400	100	1,200	10,700
1975	29,390	4.9	2,300	13,550	520	400	100	1,300	11,200
1976	30,320	4.8	2,700	14,100	530	450	100	1,400	11,000
1977	31,800	4.9	2,900	14,800	500	500	100	1,500	11,500
1978	33,800	4.9	3,500	15,900	600	400	100	1,500	11,800
1979	33,800	5.0	2,700	16,700	400	500	100	1,600	11,800
1980	33,600	5.0	2,700	16,200	400	400	100	1,800	12,000
1981	32,000	4.7	2,500	15,400	400	400	100	1,700	11,500
1982	28,500	4.1	2,200	13,700	400	400	100	1,500	10,200
1983	27,900	4.0	2,300	13,400	300	400	100	1,400	10,000
1984	29,100	4.0	2,300	13,600	400	400	100	1,400	10,900
1985	29,340	4.0	2,300	14,100	340	400	100	1,400	10,700
1986	30,570	4.1	2,200	14,000	470	300	100	1,500	12,000
1987	30,900	4.0	3,100[e]	13,700	400	600[e]	100	8,700[e]	4,300[e]
1988	31,600	3.9	3,400	13,500	400	600	100	9,200	4,400
1989	30,500	3.6	3,200	13,800	500	500	100	8,300	4,100
1988-89 Change	**–3%**	**–8%**	**–6%**	**+2%**	**+25%**	**–17%**	**0%**	**–10%**	**–7%**

Source: National Safety Council estimates based on reports from National Center for Health Statistics, Federal Highway Administration and state traffic authorities; 1987-1988 revised; 1989 preliminary.

[a] Totals may not equal sums of the types due to rounding.

[b] Deaths per 100,000,000 vehicle miles.

[c] Not available.

[d] Data are not comparable to previous years shown due to classification change in 1969.

[e] Procedures and benchmarks for estimating deaths for certain types of accidents were changed for the 1990 edition. Estimates for 1987 and later years are not comparable to earlier years.

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Motor-Vehicle Deaths and Death Rates by Age, 1913-1989

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[2]
				DEATHS				
1913	4,200	300	1,100	600	1,100	800	300	
1914	4,700	300	1,200	700	1,200	900	400	
1915	6,600	400	1,500	1,000	1,700	1,400	600	
1916	8,200	600	1,800	1,300	2,100	1,700	700	
1917	10,200	700	2,400	1,400	2,700	2,100	900	
1918	10,700	800	2,700	1,400	2,500	2,300	1,000	
1919	11,200	900	3,000	1,400	2,500	2,100	1,300	
1920	12,500	1,000	3,300	1,700	2,800	2,300	1,400	
1921	13,900	1,100	3,400	1,800	3,300	2,700	1,600	
1922	15,300	1,100	3,500	2,100	3,700	3,100	1,800	
1923	18,400	1,200	3,700	2,800	4,600	3,900	2,200	
1924	19,400	1,400	3,800	2,900	4,700	4,100	2,500	
1925	21,900	1,400	3,900	3,600	5,400	4,800	2,800	
1926	23,400	1,400	3,900	3,900	5,900	5,200	3,100	
1927	25,800	1,600	4,000	4,300	6,600	5,800	3,500	
1928	28,000	1,600	3,800	4,900	7,200	6,600	3,900	
1929	31,200	1,600	3,900	5,700	8,000	7,500	4,500	
1930	32,900	1,500	3,600	6,200	8,700	8,000	4,900	
1931	33,700	1,500	3,600	6,300	9,100	8,200	5,000	
1932	29,500	1,200	2,900	5,100	8,100	7,400	4,800	
1933	31,363	1,274	3,121	5,649	8,730	7,947	4,642	
1934	36,101	1,210	3,182	6,561	10,232	9,530	5,386	
1935	36,369	1,253	2,951	6,755	10,474	9,562	5,374	
1936	38,089	1,324	3,026	7,184	10,807	10,089	5,659	
1937	39,643	1,303	2,991	7,800	10,877	10,475	6,197	
1938	32,582	1,122	2,511	6,016	8,772	8,711	5,450	
1939	32,386	1,192	2,339	6,318	8,917	8,292	5,328	
1940	34,501	1,176	2,584	6,846	9,362	8,882	5,651	
1941	39,969	1,378	2,838	8,414	11,069	9,829	6,441	
1942	28,309	1,069	1,991	5,932	7,747	7,254	4,316	
1943	23,823	1,132	1,959	4,522	6,454	5,996	3,760	
1944	24,282	1,203	2,093	4,561	6,514	5,982	3,929	
1945	28,076	1,290	2,386	5,358	7,578	6,794	4,670	
1946	33,411	1,568	2,508	7,445	8,955	7,532	5,403	
1947	32,697	1,502	2,275	7,251	8,775	7,468	5,426	
1948	32,259	1,635	2,337	7,218	8,702	7,190	3,173	2,004
1949	31,701	1,667	2,158	6,772	8,892	7,073	3,116	2,023
1950	34,763	1,767	2,152	7,600	10,214	7,728	3,264	2,038
1951	36,996	1,875	2,300	7,713	11,253	8,276	3,444	2,135
1952	37,794	1,951	2,295	8,115	11,380	8,463	3,472	2,118
1953	37,956	2,019	2,368	8,169	11,302	8,318	3,508	2,271
1954	35,586	1,864	2,332	7,571	10,521	7,848	3,247	2,203
1955	38,426	1,875	2,406	8,656	11,448	8,372	3,455	2,214
1956	39,628	1,770	2,640	9,169	11,551	8,573	3,657	2,268
1957	38,702	1,785	2,604	8,667	11,230	8,545	3,560	2,311
1958	36,981	1,791	2,710	8,388	10,414	7,922	3,535	2,221
1959	37,910	1,842	2,719	8,969	10,358	8,263	3,487	2,272
1960	38,137	1,953	2,814	9,117	10,189	8,294	3,457	2,313
1961	38,091	1,891	2,802	9,088	10,212	8,267	3,467	2,364
1962	40,804	1,903	3,028	10,157	10,701	8,812	3,696	2,507
1963	43,564	1,991	3,063	11,123	11,356	9,506	3,786	2,739
1964	47,700	2,120	3,430	12,400	12,500	10,200	4,150	2,900
1965	49,163	2,059	3,526	13,395	12,595	10,509	4,077	3,002
1966	53,041	2,182	3,869	15,298	13,282	11,051	4,217	3,142
1967	52,924	2,067	3,845	15,646	12,987	10,902	4,285	3,192
1968	54,862	1,987	4,105	16,543	13,602	11,031	4,261	3,333
1969	55,791	2,077	4,045	17,443	13,868	11,012	4,210	3,136
1970	54,633	1,915	4,159	16,720	13,446	11,099	4,084	3,210
1971	54,381	1,885	4,256	17,103	13,307	10,471	4,108	3,251
1972	56,278	1,896	4,258	17,942	13,758	10,836	4,138	3,450
1973	55,511	1,998	4,124	18,032	14,013	10,216	3,892	3,236
1974	46,402	1,546	3,332	15,905	11,834	8,159	3,071	2,555
1975	45,853	1,576	3,286	15,672	11,969	7,663	3,047	2,640
1976	47,038	1,532	3,175	16,650	12,112	7,770	3,082	2,717

See source and footnotes on page 79.

Motor-Vehicle Deaths and Death Rates by Age, 1913-1989, Cont.

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
1977	49,510	1,472	3,142	18,092	13,031	8,000	3,060	2,713
1978	52,411	1,551	3,130	19,164	14,574	8,048	3,217	2,727
1979	53,524	1,461	2,952	19,369	15,658	8,162	3,171	2,751
1980	53,172	1,426	2,747	19,040	16,133	8,022	2,991	2,813
1981	51,385	1,256	2,575	17,363	16,447	7,818	3,090	2,836
1982	45,779	1,300	2,301	15,324	14,469	6,879	2,825	2,681
1983	44,452	1,233	2,241	14,289	14,323	6,690	2,827	2,849
1984	46,263	1,138	2,263	14,738	15,036	6,954	3,020	3,114
1985	45,901	1,195	2,319	14,277	15,034	6,885	3,014	3,177
1986	47,865	1,188	2,350	15,227	15,844	6,799	3,096	3,361
1987	48,290	1,190	2,397	14,447	16,405	7,021	3,277	3,553
1988	48,900	1,300	2,500	14,300	16,500	7,300	3,300	3,700
1989	46,900	1,400	2,300	12,400	16,100	7,500	3,300	3,900
Changes in Deaths								
1979 to 1989	**–12%**	**–4%**	**–22%**	**–36%**	**+3%**	**–8%**	**+4%**	**+42%**
1988 to 1989	**– 4%**	**+8%**	**– 8%**	**–13%**	**–2%**	**+3%**	**0%**	**+ 5%**
DEATH RATES[b]								
1913	4.4	2.3	5.5	3.1	3.8	5.3	8.5	
1914	4.8	2.5	5.7	3.5	4.1	6.2	9.3	
1915	6.6	3.5	7.3	5.0	5.6	8.8	13.5	
1916	8.1	4.7	8.6	6.0	7.0	10.7	15.8	
1917	10.0	5.6	10.6	7.4	8.6	12.6	18.6	
1918	10.3	6.9	12.3	7.7	8.3	13.7	21.2	
1919	10.7	7.5	13.9	7.5	8.1	12.4	24.1	
1920	11.7	8.6	14.6	8.7	8.8	13.5	27.0	
1921	12.9	9.0	14.5	9.2	10.2	15.4	31.0	
1922	13.9	9.2	15.0	10.8	11.1	17.2	34.9	
1923	16.5	9.7	15.6	13.4	13.6	21.0	40.5	
1924	17.1	11.1	16.1	14.3	13.7	21.8	43.7	
1925	19.1	11.0	15.6	17.2	15.8	25.0	48.9	
1926	20.1	11.0	15.9	18.6	17.1	26.3	51.4	
1927	21.8	12.8	16.0	20.0	18.8	28.9	56.9	
1928	23.4	12.7	15.5	21.9	20.2	32.4	62.2	
1929	25.7	13.4	15.6	25.6	22.3	35.6	68.6	
1930	26.7	13.0	14.7	27.4	23.9	37.0	72.5	
1931	27.2	13.3	14.5	27.9	24.8	37.4	70.6	
1932	23.6	11.3	12.0	22.6	22.0	32.9	63.6	
1933	25.0	12.0	12.7	24.8	23.4	34.7	63.1	
1934	28.6	11.7	13.0	28.6	27.2	40.7	71.0	
1935	28.6	12.3	12.2	29.2	27.6	39.9	68.9	
1936	29.7	13.2	12.6	30.8	28.2	41.3	70.5	
1937	30.8	13.0	12.7	33.2	28.2	42.0	75.1	
1938	25.1	11.0	10.8	25.4	22.5	34.3	64.1	
1939	24.7	11.2	10.4	26.5	22.6	32.2	60.2	
1940	26.1	11.1	11.5	28.7	23.5	33.9	62.1	
1941	30.0	12.7	12.6	35.7	27.5	37.0	68.6	
1942	21.1	9.5	8.8	25.6	19.2	26.9	44.5	
1943	17.8	9.4	8.6	20.6	16.1	21.9	37.6	
1944	18.3	9.6	9.1	22.5	16.6	21.6	38.2	
1945	21.2	10.0	10.3	27.8	19.7	24.2	44.1	
1946	23.9	11.9	10.8	34.4	21.1	26.4	49.6	
1947	22.8	10.5	9.7	32.8	20.3	25.7	48.2	
1948	22.1	11.0	9.8	32.5	19.8	24.3	39.6	55.4
1949	21.3	10.7	9.0	30.7	19.9	23.4	37.8	53.9
1950	23.0	10.8	8.8	34.5	22.5	25.1	38.8	52.4
1951	24.1	10.9	9.2	36.0	24.7	26.5	39.5	53.0

See source and footnotes on page 79.

Motor-Vehicle Deaths and Death Rates by Age, 1913-1989, Cont.

Year	ALL AGES	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 Years and Over[a]
1952	24.3	11.3	8.7	38.6	24.7	26.7	38.5	50.8
1953	24.0	11.5	8.5	39.1	24.5	25.8	37.7	52.6
1954	22.1	10.4	8.1	36.2	22.6	24.0	33.9	49.0
1955	23.4	10.2	8.0	40.9	24.5	25.2	35.1	47.1
1956	23.7	9.4	8.4	42.9	24.6	25.3	36.2	46.4
1957	22.7	9.2	8.0	39.7	23.9	24.8	34.4	45.5
1958	21.3	9.1	8.1	37.0	22.3	22.6	33.5	42.3
1959	21.5	9.1	7.9	38.2	22.2	23.2	32.3	41.8
1960	21.2	9.6	7.9	37.7	21.7	22.9	31.3	41.1
1961	20.8	9.2	7.6	36.5	21.8	22.5	30.7	[illegible]
1962	22.0	9.3	8.1	38.4	22.9	23.7	32.2	41.7
1963	23.1	9.8	8.0	40.0	24.3	25.2	32.6	44.3
1964	25.0	10.5	8.8	42.6	26.8	26.6	35.5	45.2
1965	25.4	10.4	8.9	44.2	27.0	27.0	34.6	45.4
1966	27.1	11.4	9.7	48.7	28.5	27.9	35.4	46.2
1967	26.8	11.2	9.5	48.4	27.8	27.1	35.6	45.4
1968	27.5	11.1	10.1	49.8	28.8	27.0	35.1	46.0
1969	27.7	12.0	9.9	50.7	29.1	26.6	34.3	42.0
1970	26.8	11.2	10.2	46.7	27.9	26.4	32.7	42.2
1971	26.3	10.9	10.5	45.7	27.4	24.7	32.4	41.3
1972	26.9	11.1	10.7	47.1	27.4	25.3	32.0	42.6
1973	26.3	11.9	10.5	46.3	27.2	23.6	29.4	39.1
1974	21.8	9.4	8.6	40.0	22.4	18.8	22.6	30.1
1975	21.3	9.8	8.6	38.7	22.1	17.5	21.9	30.1
1976	21.6	9.8	8.4	40.3	21.8	17.6	21.6	30.1
1977	22.5	9.5	8.5	43.3	22.7	18.1	20.9	29.3
1978	23.6	9.9	8.6	45.4	24.6	18.2	21.5	28.7
1979	23.8	9.1	8.3	45.6	25.6	18.4	20.7	28.1
1980	23.4	8.7	7.9	44.8	25.5	18.0	19.1	28.0
1981	22.4	7.4	7.5	41.2	25.2	17.5	19.4	27.5
1982	19.7	7.5	6.7	36.9	21.4	15.4	17.4	25.2
1983	19.0	7.0	6.6	35.1	20.5	15.0	17.1	26.1
1984	19.6	6.4	6.7	36.7	20.9	15.5	18.0	27.7
1985	19.2	6.6	6.8	36.1	20.4	15.3	17.7	27.6
1986	19.9	6.5	6.9	39.0	20.9	15.1	17.9	28.4
1987	19.8	6.5	7.0	37.8	21.1	15.5	18.5	29.2
1988	19.9	7.1	7.2	38.2	20.9	15.9	18.4	29.7
1989	18.9	7.5	6.5	34.0	20.0	16.1	18.1	30.5
Changes in Rates								
1979 to 1989	**−21%**	**−18%**	**−22%**	**−25%**	**−22%**	**−13%**	**−13%**	**+9%**
1988 to 1989	**− 5%**	**+ 6%**	**−10%**	**−11%**	**− 4%**	**+ 1%**	**− 2%**	**+3%**

Source: 1913 to 1932 calculated from National Center for Health Statistics data for registration states; 1933 to 1963, 1965 to 1987 are NCHS totals. All other figures are National Safety Council estimates. 1989 preliminary, 1988 revised. See page 21 for comparability.

[a] Includes "age unknown." In 1987 these deaths numbered 49.

[b] Death rates are deaths per 100,000 population in each age group.

Emergency Vehicles Involved in Accidents

About 20,000 police cars were involved in police-reported motor-vehicle traffic accidents in 1988 according to data from the National Accident Sampling System file of the National Highway Traffic Safety Administration (NHTSA). Other emergency vehicles involved in accidents in 1988 included about 2,500 fire trucks and 4,500 ambulances.

Also in 1988, 98 police cars, 20 fire trucks, and 24 ambulances were involved in fatal traffic accidents according to NHTSA's Fatal Accident Reporting System (FARS).

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Motor-Vehicle Traffic Deaths, Cities, 1988-1989

City		1989	1988	1989 Rates	
				Pop.	Reg.
All Cities		**7,321**	**7,446**	**11.0**	**1.5**
(450 Reporting Cities Over 25,000 Population)					
Group I—Over 1,000,000 Population (6 Cities)					
All Cities		**1,826**	**1,797**	**10.2**	**1.7**
Los Angeles,	Cal.	363	397	11.1	1.5
Chicago,	Ill.	294	307	9.8	2.2
Detroit,	Mich.	127	159	11.7	1.9
New York,	N. Y.	615	567	8.5	1.5
Philadelphia,	Pa.	180	149	11.0	2.3
Houston,	Tex.	247	218	14.3	1.7
Group II—750,000-1,000,000 Population (2 Cities)					
All Cities		**306**	**292**	**16.0**	**2.0**
Dallas,	Tex.	176	165	17.5	2.3
San Antonio,	"	130	127	14.2	1.8
Group III—500,000-750,000 Population (13 Cities)					
All Cities		**897**	**973**	**10.6**	**1.6**
Phoenix,	Ariz.	140	163	15.7	2.2
San Francisco,	Cal.	45	71	6.0	0.8
San Jose,	"	55	64	7.7	1.0
Washington,	D.C.	75	62	12.0	2.8
Jacksonville,	Fla.	137	124	22.5	2.9
Honolulu,	Haw.	79	88	10.9	2.2
Indianapolis,	Ind.	34	42	4.7	0.6
New Orleans,	La.	49	75	8.8	1.8
Boston,	Mass.	46	55	8.0	1.2
St. Louis,	Mo.	52	45	10.2	1.4
Cleveland,	Ohio	76	69	12.8	2.2
Columbus,	"	61	73	10.8	1.8
Milwaukee,	Wis.	48	42	7.9	1.0
Group IV—350,000-500,000 Population (13 Cities)					
All Cities		**683**	**689**	**13.0**	**1.7**
Denver,	Colo.	49	41	10.3	1.1
Atlanta,	Ga.	88	80	21.7	2.6
Minneapolis,	Minn.	21	24	5.9	0.8
Kansas City,	Mo.	81	78	17.7	2.3
Omaha,	Neb.	24	33	6.5	0.8
Buffalo,	N. Y.	18	25	5.0	0.6
Cincinnati,	Ohio	33	36	8.3	1.2
Toledo,	"	45	37	12.8	1.6
Oklahoma City,	Okla.	82	66	22.4	3.2
Pittsburgh,	Pa.	32	25	7.5	1.3
Nashville,	Tenn.	93	109	21.9	3.5
Fort Worth,	Tex.	83	76	22.6	2.8
Seattle,	Wash.	34	59	7.0	0.7
Group V—200,000-350,000 Population (26 Cities)					
All Cities		**912**	**870**	**13.1**	**1.7**
Birmingham,	Ala.	47	44	16.8	2.1
Mobile,	"	26	23	12.5	1.3
Anchorage,	Alas.	29	21	14.3	2.1
Tucson,	Ariz.	42	47	12.7	1.6
Anaheim,	Cal.	24	34	11.6	1.2
Long Beach,	"	51	45	15.0	2.0
Oakland,	"	44	40	13.0	2.0
Sacramento,	"	36	34	13.1	1.5
Colorado Sprgs.,	Colo.	35	25	16.9	2.0
Miami,	Fla.	73	82	21.0	2.3
St. Petersburg,	"	41	29	17.7	1.9
Tampa,	"	53	63	20.1	2.2
Wichita,	Kans.	26	31	9.7	1.0
Baton Rouge,	La.	31	29	10.0	1.2
Shreveport,	"	18	16	8.9	1.0
St. Paul,	Minn.	15	15	5.7	0.9
Albuquerque,	N. M.	49	50	16.6	2.6
Rochester,	N. Y.	12	18	5.0	0.7
Charlotte,	N. C.	33	36	11.0	1.9
Akron,	Ohio	22	20	9.2	1.0
Tulsa,	Okla.	38	30	11.5	1.3
Austin,	Tex.	68	45	21.3	3.7
Corpus Christi,	"	33	24	15.4	1.9
Norfolk,	Va.	13	24	4.6	0.9
Richmond,	"	22	18	10.0	1.5
Virginia Beach,	"	31	27	12.6	1.4
Group VI—100,000-200,000 Population (74 Cities)					
All Cities		**1,180**	**1,193**	**11.6**	**1.4**
Huntsville,	Ala.	27	28	19.0	2.1
Montgomery,	"	23	23	14.5	1.5
Mesa,	Ariz.	33	29	28.0	3.5
Berkeley,	Cal.	5	7	4.9	0.7
Fremont,	"	8	11	6.6	0.7
Fullerton,	"	13	8	12.9	1.6
Garden Grove,	"	12	12	9.8	1.2
Glendale,	"	9	12	6.6	0.7
Hntngtn. Bch.,	"	12	15	7.1	0.8
Oxnard,	"	10	13	8.6	1.1
Riverside,	"	26	31	16.5	1.8
San Bernardino,	"	17	22	16.3	1.6
Santa Ana,	"	44	31	23.8	3.0
Torrance,	"	6	16	4.6	0.5
Aurora,	Colo.	14	15	9.9	1.0
Pueblo,	"	14	10	12.7	1.4
Bridgeport,	Conn.	11	9	7.7	0.9
Hartford,	"	16	17	11.6	1.8
New Haven,	"	17	23	13.5	1.6
Stamford,	"	9	5	8.9	1.1
Waterbury,	"	15	25	14.7	1.6
Fort Lauderdale,	Fla.	35	37	23.4	2.6
Hialeah,	"	36	24	28.7	2.9
Orlando,	"	24	14	20.0	2.2
Macon,	Ga.	25	21	20.6	2.3
Savannah,	"	15	25	11.0	1.1
Peoria,	Ill.	7	12	5.7	0.8
Rockford,	"	18	16	12.9	1.6
Evansville,	Ind.	11	11	8.2	0.9
Fort Wayne,	"	19	23	10.5	1.3
South Bend,	"	14	10	12.4	1.3
Cedar Rapids,	Ia.	10	9	9.3	1.0
Kansas City,	Kans.	22	19	13.4	2.0
Topeka,	"	5	13	4.1	0.4
Lexington,	Ky.	27	37	14.2	1.7
Ann Arbor,	Mich.	5	0	4.8	0.6
Flint,	"	21	20	13.2	1.3
Grand Rapids,	"	19	14	10.5	1.4
Lansing,	"	10	11	8.0	0.8

Motor-Vehicle Traffic Deaths, Cities, 1988-1989, Cont.

City		1989	1988	1989 Rates	
				Pop.	Reg.
Livonia,	Mich.	12	12	11.5	1.4
Sterling Hts.,	"	6	7	6.5	1.2
Warren,	"	17	17	10.5	1.4
Jackson,	Miss.	32	23	16.8	2.3
Springfield,	Mo.	16	18	11.5	1.3
Lincoln,	Neb.	15	5	9.0	1.1
Albany,	N. Y.	8	4	6.9	0.8
Syracuse,	"	11	6	6.3	0.7
Yonkers,	"	13	11	6.8	1.0
Durham,	N. C.	8	8	7.6	1.2
Greensboro,	"	24	21	14.7	2.3
Raleigh,	"	13	15	9.4	1.4
Winston-Salem,	"	17	13	12.1	1.8
Dayton,	Ohio	35	28	18.4	2.0
Youngstown,	"	15	21	13.0	1.4
Allentown,	Pa.	13	9	12.7	1.3
Erie,	"	11	15	9.0	1.3
Providence,	R. I.	9	7	5.8	0.9
Knoxville,	Tenn.	24	23	13.0	1.6
Arlington,	Tex.	25	31	18.8	3.6
Beaumont,	"	14	19	11.9	1.5
Garland,	"	7	15	5.3	0.6
Lubbock,	"	23	21	13.7	1.6
Pasadena,	"	14	10	13.4	1.8
Waco,	"	11	15	10.6	1.1
Salt Lake City,	Utah	24	15	14.7	1.7
Alexandria,	Va.	5	5	4.8	0.7
Arlington,	"	14	14	9.0	1.0
Chesapeake,	"	18	19	15.8	1.7
Hampton,	"	9	11	7.2	0.9
Newport News,	"	7	20	4.9	0.6
Portsmouth,	"	10	6	9.2	1.6
Spokane,	Wash.	9	14	5.3	0.7
Tacoma,	"	14	26	8.9	1.0
Madison,	Wis.	13	11	7.6	0.8

Group VII—50,000-100,000 Population (139 Cities)

City		1989	1988	1989 Rates	
				Pop.	Reg.
All Cities		**936**	**943**	**9.7**	**1.2**
Tuscaloosa,	Ala.	7	13	10.1	1.3
Fort Smith,	Ark.	3	6	4.4	0.5
N. Little Rock,	"	5	3	8.0	1.1
Pine Bluff,	"	13	16	23.3	2.6
Burbank,	Cal.	8	4	9.5	1.1
Chula Vista,	"	6	4	7.4	0.7
Compton,	"	8	9	10.8	1.3
Daly City,	"	3	4	4.1	0.5
El Cajon,	"	7	6	10.0	1.3
Escondido,	"	9	18	15.2	2.2
La Mesa,	"	3	4	6.0	0.6
Modesto,	"	10	9	10.3	1.3
Oceanside,	"	7	9	10.2	1.1
Palo Alto,	"	4	3	7.4	0.8
Pico Rivera,	"	8	3	15.8	2.1
Redondo Beach,	"	5	4	8.3	1.1
Richmond,	"	9	3	12.1	1.8
Santa Clara,	"	8	6	9.5	1.1
South Gate,	"	6	3	10.0	1.3
Vallejo,	"	6	8	8.4	0.8
Westminster,	"	10	12	14.2	1.8
Whittier,	"	1	7	1.4	0.2
Gainesville,	Fla.	3	12	4.2	0.5
Lakeland,	"	19	13	37.7	4.4
Miami Beach,	"	24	23	27.1	3.0
Pensacola,	"	10	10	15.0	1.6
Pompano Beach,	"	11	26	20.9	2.3
West Palm Beach,	"	14	21	23.7	2.5
Aurora,	Ill.	9	7	11.2	1.2
Decatur,	"	10	12	11.2	1.2
Elgin,	"	6	4	9.5	1.0
Evanston,	"	5	3	7.1	1.1
Joliet,	"	5	11	6.9	0.8
Skokie,	"	5	1	7.7	1.2
Springfield,	"	10	10	11.6	1.3
Waukegan,	"	2	3	3.1	0.4
Anderson,	Ind.	2	0	2.9	0.3
Muncie,	"	7	8	8.6	1.1
Dubuque,	Ia.	1	5	1.6	0.2
Sioux City,	"	13	10	15.4	2.0
Waterloo,	"	4	5	5.0	0.6
Overland Park,	Kans.	5	3	6.0	0.9
Owensboro,	Ky.	2	0	4.0	0.5
Lafayette,	La.	16	12	19.7	2.9
Lake Charles,	"	11	11	13.9	2.0
Portland,	Me.	4	3	6.5	0.8
Brookline,	Mass.	1	4	1.8	0.4
Chicopee,	"	5	6	9.1	1.1
Framingham,	"	6	2	9.3	1.2
Lawrence,	"	4	3	6.4	1.0
Newton,	"	0	4	0.0	0.0
Pittsfield,	"	6	4	11.6	1.6
Somerville,	"	1	1	1.3	0.3
Waltham,	"	2	1	3.6	0.5
Dearborn,	Mich.	9	10	9.9	1.3
Dearborn Hts.,	"	7	6	10.3	1.5
East Lansing,	"	0	1	0.0	0.0
Kalamazoo,	"	3	10	3.8	0.5
Pontiac,	"	12	11	15.3	1.8
Roseville,	"	4	9	7.4	0.9
Royal Oak,	"	4	4	5.6	0.7
Saginaw,	"	3	5	3.9	0.5
Southfield,	"	11	9	14.6	1.8
St. Clair Shrs.	"	0	1	0.0	0.0
Taylor,	"	12	10	15.5	2.4
Troy,	"	10	10	14.9	1.9
Wyoming,	"	5	4	8.4	1.4
Duluth,	Minn.	6	5	6.5	0.8
Rochester,	"	2	4	3.5	0.4
Columbia,	Mo.	6	4	9.1	1.0
Florissant,	"	2	0	2.8	0.4
St. Joseph,	"	4	6	5.1	0.7
Billings,	Mont.	3	4	4.3	0.4
Great Falls,	"	1	1	1.8	0.2
Reno,	Nev.	12	9	13.0	2.0
Manchester,	N. H.	21	11	23.1	2.5
Nashua,	"	7	2	10.3	1.1
Bayonne,	N. J.	2	1	3.1	0.6
Camden,	"	6	8	7.1	1.0
Clifton,	"	8	9	10.8	1.5
Dover Twp.,	"	21	15	33.0	4.3
Middletown Twp.,	"	3	4	5.1	0.9

Motor-Vehicle Traffic Deaths, Cities, 1988-1989, Cont.

City		1989	1988	1989 Rates	
				Pop.	Reg.
Trenton,	N.J.	7	6	7.4	0.8
Vineland,	"	13	14	24.7	3.5
Mt. Vernon,	N. Y.	3	3	4.1	0.8
New Rochelle,	"	5	2	7.1	1.0
Schenectady,	"	5	7	7.0	0.9
Utica,	"	4	5	5.1	0.9
Fayetteville,	N. C.	10	11	16.8	2.2
Fargo,	N. D.	3	0	4.9	0.8
Canton,	Ohio	6	7	6.2	0.8
Elyria,	"	2	4	3.5	0.5
Fairborn,	"	0	2	0.0	0.0
Hamilton,	"	7	5	10.4	1.2
Kettering,	"	3	1	4.9	0.9
Lakewood,	"	1	1	1.6	0.3
Lima,	"	7	3	13.8	1.8
Mansfield,	"	4	2	7.1	0.9
Parma,	"	6	5	6.5	0.8
Springfield,	"	5	7	6.8	0.8
Lawton,	Okla.	6	5	7.9	1.0
Norman,	"	9	6	15.0	1.7
Salem,	Ore.	14	15	15.6	2.2
Bethlehem,	Pa.	3	6	4.1	0.4
Harrisburg,	"	12	5	20.6	3.1
Lancaster,	"	1	7	1.8	0.2
Lwr. Merion Twp.,	"	0	7	0.0	0.0
Reading,	"	9	8	11.7	1.4
Wilkes-Barre,	"	2	4	3.7	0.5
Cranston,	R. I.	7	10	9.7	1.8
Warwick,	"	10	15	11.5	1.3
Charleston,	S. C.	9	7	15.2	2.2
Sioux Falls,	S. D.	3	8	3.7	0.4
Abilene,	Tex.	19	9	19.7	2.3
Brownsville,	"	11	11	15.4	1.8
Galveston,	"	20	14	33.7	5.5
Grand Prairie,	"	13	14	22.9	3.0
Mesquite,	"	12	7	19.0	3.6
Midland,	"	4	8	5.9	0.7
Odessa,	"	8	15	8.8	1.1
Port Arthur,	"	8	20	13.0	2.1
San Angelo,	"	6	8	8.7	1.1
Tyler,	"	17	13	25.4	3.3
Orem,	Utah	6	3	11.4	1.6
Provo,	"	2	2	2.7	0.5
Lynchburg,	Va.	9	4	14.0	1.4
Roanoke,	"	8	5	8.2	1.1
Bellevue,	Wash.	3	10	4.2	0.5
Everett,	"	5	5	9.5	1.1
Yakima,	"	6	5	11.2	1.4
Charleston,	W. Va.	15	9	22.5	3.0
Appleton,	Wis.	5	0	8.2	0.9
Green Bay,	"	6	7	6.6	0.7
Janesville,	"	2	5	4.0	0.4
Kenosha,	"	10	4	12.4	1.5
Racine,	"	6	1	6.5	0.7
Waukesha,	"	0	2	0.0	0.0
Wauwatosa,	"	4	1	7.8	0.9
West Allis,	"	2	3	3.1	0.4

Group VIII—25,000-50,000 Population (177 Cities)

City		1989	1988	1989 Rates	
				Pop.	Reg.
All Cities		**581**	**689**	**9.2**	**1.1**
Anniston,	Ala.	5	6	16.0	1.8
Dothan,	"	7	14	14.9	1.8
Florence,	"	2	5	5.4	0.6
Gadsden,	"	7	7	14.4	1.6
Phenix City,	"	3	2	11.0	1.3
Yuma,	Ariz.	3	10	9.2	0.9
Carlsbad,	Cal.	1	13	3.3	0.4
Chino,	"	11	4	29.6	4.7
Covina,	"	0	2	0.0	0.0
La Habra,	"	4	4	9.1	1.0
Livermore,	"	0	3	0.0	0.0
National City,	"	12	1	25.6	4.4
Redding,	"	5	11	11.9	1.5
Santa Cruz,	"	3	3	7.7	0.9
Vacaville,	"	2	1	5.3	0.5
Longmont,	Colo.	0	0	0.0	0.0
Daytona Beach,	Fla.	11	-15	22.5	2.5
Fort Myers,	"	15	10	41.4	4.5
Fort Pierce,	"	8	9	24.6	2.7
Hallandale,	"	5	3	15.1	2.3
Lake Worth,	"	8	3	30.5	3.6
North Miami,	"	6	8	14.2	2.2
Ocala,	"	7	12	20.0	2.7
Pembroke Pines,	"	1	6	3.4	0.4
Pinellas Park,	"	8	4	26.9	2.7
Plantation,	"	7	12	16.6	1.8
Hilo,	Haw.	40	38	151.5	15.6
Idaho Falls,	Ida.	1	6	2.6	0.3
Alton,	Ill.	7	3	20.7	2.7
Berwyn,	"	4	6	8.6	1.1
Calumet City,	"	1	2	2.6	0.4
DeKalb,	"	3	2	9.1	1.5
Elk Grove Vlge.,	"	4	3	15.4	2.2
Elmhurst,	"	5	3	11.3	1.3
Galesburg,	"	3	5	9.1	1.1
Glenview,	"	0	2	0.0	0.0
Granite City,	"	5	9	12.9	1.3
Moline,	"	8	8	18.5	2.1
North Chicago,	"	5	5	12.1	2.2
Quincy,	"	3	0	7.3	0.7
Wheaton,	"	0	2	0.0	0.0
Wilmette,	"	1	1	3.2	0.5
Highland,	Ind.	2	3	7.7	1.0
Marion,	"	3	7	7.6	0.9
Michigan City,	"	4	2	9.6	1.2
Mishawaka,	"	11	3	27.8	3.0
Ames,	Ia.	0	0	0.0	0.0
Bettendorf,	"	1	0	3.6	0.4
Burlington,	"	0	4	0.0	0.0
Mason City,	"	2	1	6.6	0.8
Hutchinson,	Kans.	2	4	4.8	0.5
Manhattan,	"	1	2	2.9	0.3
Prairie Vlge.	"	0	0	0.0	0.0
Salina,	"	2	3	5.2	0.5
Shawnee,	"	4	2	15.6	1.7
Bangor,	Me.	0	3	0.0	0.0
Annapolis,	Md.	2	4	6.4	0.8
Hagerstown,	"	2	2	5.4	0.7
Arlington,	Mass.	1	0	2.1	0.3
Belmont,	"	2	0	7.7	1.1
Holyoke,	"	2	11	4.5	0.7

Motor-Vehicle Traffic Deaths, Cities, 1988-1989, Cont.

City		1989	1988	1989 Rates	
				Pop.	Reg.
Watertown,	Mass.	4	1	11.6	1.6
W. Springfield,	"	0	4	0.0	0.0
Allen Park,	Mich.	4	5	11.7	1.6
Battle Creek,	"	8	2	19.4	2.4
Bay City,	"	5	2	12.0	1.4
Oak Park,	"	0	1	0.0	0.0
East Detroit,	"	1	3	2.6	0.4
Ferndale,	"	2	0	7.6	0.9
Garden City,	"	0	2	0.0	0.0
Highland Park,	"	3	4	10.4	1.2
Inkster,	"	3	4	8.5	1.5
Jackson,	"	4	2	9.3	1.1
Kentwood,	"	6	10	19.7	3.1
Lincoln Park,	"	4	4	8.9	1.3
Madison Hts.,	"	0	2	0.0	0.0
Midland,	"	0	4	0.0	0.0
Muskegon,	"	6	6	14.8	1.8
Portage,	"	5	3	13.5	2.3
Port Huron,	"	3	2	8.8	1.0
Southgate,	"	3	1	9.4	1.4
Westland,	"	10	7	23.1	2.8
Wyandotte,	"	0	3	0.0	0.0
Ypsilanti,	"	1	2	3.6	0.4
Brooklyn Center,	Minn.	0	0	0.0	0.0
Coon Rapids,	"	5	2	15.6	3.1
Moorhead,	"	0	1	0.0	0.0
St. Louis Park,	"	2	3	4.5	0.7
Winona,	"	1	0	4.0	0.5
Cape Girardeau,	Mo.	2	2	6.0	0.7
Gladstone,	"	0	2	0.0	0.0
Jefferson City,	"	3	7	7.9	1.0
Kirkwood,	"	0	1	0.0	0.0
Raytown,	"	1	0	3.1	0.6
St. Charles,	"	3	2	7.2	1.1
University City,	"	0	0	0.0	0.0
Grand Island,	Neb.	2	1	6.0	0.6
N. Las Vegas,	Nev.	6	9	14.1	2.4
Concord,	N. H.	3	2	9.9	1.1
Kearny,	N. J.	3	7	8.4	0.9
Neptune,	"	2	4	7.2	0.9
Piscataway Twp.,	"	2	0	5.4	0.6
West Orange,	"	2	4	4.9	0.7
Elmira,	N. Y.	2	0	5.7	0.6
Jamestown,	"	2	1	5.6	0.7
Rome,	"	1	2	2.2	0.3
Watertown,	"	0	1	0.0	0.0
Burlington,	N. C.	2	7	5.4	0.7
Goldsboro,	"	4	2	12.6	1.7
Bismarck,	N. D.	3	1	6.8	1.2
Barberton,	Ohio	2	2	7.5	0.8
Bowling Green,	"	0	2	0.0	0.0
East Cleveland,	"	4	2	10.8	1.5
Garfield Hts.,	"	1	2	2.9	0.4
Kent,	"	1	4	3.8	0.5
Middletown,	"	3	5	6.3	0.7
North Olmsted,	"	2	1	5.5	0.8
Portsmouth,	"	0	2	0.0	0.0
Sandusky,	"	4	3	12.8	1.3
Shaker Heights,	"	0	0	0.0	0.0
South Euclid,	"	1	1	3.9	0.5
Steubenville,	"	2	1	7.4	0.8
Stow,	Ohio	2	5	7.9	1.5
Zanesville,	"	1	3	2.6	0.3
Bartlesville,	Okla.	2	4	6.8	0.8
Enid,	"	3	4	6.3	0.7
Muskogee,	"	5	0	13.4	1.4
Stillwater,	"	2	3	5.9	0.8
Medford,	Ore.	3	4	7.9	1.1
Cheltenham Twp.,	Pa.	2	3	5.4	1.0
Mt. Lebanon,	"	0	1	0.0	0.0
Woonsocket,	R. I.	2	3	4.4	0.5
Anderson,	S. C.	3	0	9.9	1.1
Florence,	"	0	6	0.0	0.0
Greenwood,	"	2	2	7.8	1.0
Rock Hill,	"	1	6	2.8	0.4
Spartanburg,	"	4	8	8.6	1.2
Sumter,	"	3	2	12.0	1.5
Aberdeen,	S. D.	0	0	0.0	0.0
Rapid City,	"	7	8	15.1	1.5
Jackson,	Tenn.	3	9	6.3	0.9
Oak Ridge,	"	3	4	10.4	1.3
Texarkana,	Tex.	1	2	3.0	0.4
Big Spring,	"	2	2	6.9	0.9
Bryan,	"	4	10	10.7	1.4
Denton,	"	10	12	22.9	3.4
Farmers Branch,	"	3	4	9.1	1.2
Haltom City,	"	1	1	3.7	0.5
Harlingen,	"	9	6	22.3	2.5
Hurst,	"	3	3	9.9	1.1
Killeen,	"	1	5	2.4	0.3
Kingsville,	"	4	4	13.9	2.2
Orange,	"	15	9	58.1	7.7
Sherman,	"	2	8	7.3	0.9
Temple,	"	1	11	2.5	0.3
Victoria,	"	7	7	14.2	1.8
Bountiful,	Utah	4	1	12.1	1.7
Logan,	"	3	1	11.2	1.4
Charlottesville,	Va.	2	2	5.1	0.7
Danville,	"	3	10	6.6	0.9
Petersburg,	"	8	9	19.6	2.0
Bremerton,	Wash.	1	1	2.4	0.3
Edmonds,	"	1	0	3.6	0.4
Kennewick,	"	2	2	7.0	1.0
Longview,	"	4	2	13.3	1.5
Olympia,	"	0	5	0.0	0.0
Renton,	"	1	3	3.5	0.4
Richland,	"	3	1	9.0	1.0
Vancouver,	"	7	4	14.5	2.0
Wheeling,	W. Va.	4	2	9.5	1.3
Eau Claire,	Wis.	1	3	2.0	0.2
Fond du Lac,	"	2	0	5.5	0.6
La Crosse,	"	2	2	4.1	0.5
Manitowoc,	"	2	2	6.0	0.7
Oshkosh,	"	2	1	4.0	0.4
Sheboygan,	"	1	4	2.0	0.2
Wausau,	"	2	1	6.1	0.6
Canadian Cities (5 Cities)					
All Cities		**136**	**146**	**6.8**	**1.6**
Lethbridge,	Alta.	7	2	19.1	4.1
Medicine Hat,	"	3	3	12.0	2.6
Vancouver,	B. C.	39	51	9.5	1.6
Hamilton,	Ont.	19	29	6.4	1.1
Montreal,	Que.	68	61	5.6	1.7

Source: City police departments; state traffic authorities. Only motor-vehicle deaths resulting from accidents occurring within the city are included.

Population death rates are deaths per 100,000 population. Registration death rates are deaths per 10,000 registered motor vehicles. Registration figures supplied by R. L. Polk & Co.

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Fleet Accident Rates by Division, 1987-1989
Reporters in the National Fleet Safety Contests

Fleet Divisions and Groups	1989 Fleets	1989 Vehicles	1989 Veh. Miles (thousands)	Accidents Per 1,000,000 Vehicle Miles 1989	Accidents Per 1,000,000 Vehicle Miles 1987-1989
Government Division	**6**	**690**	**9,993**	**9.51**	**8.46**
Intercity	1	84	2,867	1.74	12.00
City	4	315	4,551	15.60	21.02
State Highway Departments	1	291	2,575	7.38	4.38
Meat Packing Truck Division	**20**	**837**	**32,637**	**5.67**	**5.28**
Petroleum Division	**11**	**1,103**	**27,418**	**2.84**	**3.06**
Intercity Marketing	3	58	5,469	3.66	3.90
Refining	1	42	668	12.00	4.71
Production	6	468	9,703	2.37	2.11
Pipeline	1	535	11,578	2.33	2.63
Public Utility Division	**101**	**65,902**	**726,353**	**5.40**	**5.81**
Electric Utility	73	60,677	674,197	5.35	5.70
Water & Communications Utility	28	5,225	52,156	5.98	7.00
Small Fleet Division	**9**	**70**	**4,078**	**1.72**	**2.68**
Commercial Intercity	8	62	4,008	1.75	2.89
Commercial City	1	8	69	0.00	0.00
Dairy Industry Division	**57**	**1,093**	**51,867**	**3.62**	**3.07**
Retail Truck	1	30	445	0.00	1.64
Wholesale Truck	9	293	5,613	5.52	4.08
Over-The-Road Truck	27	636	38,723	3.72	3.20
Small Fleet	20	134	7,086	1.83	1.57
Passenger Car Division[a]	**27**	**7,205**	**141,180**	**3.86**	**4.38**
Eastern Region	14	5,249	109,965	4.18	4.74
Western Region	7	1,910	30,158	2.72	3.48
Small Fleet	6	46	1,056	2.84	2.97
Police Division	**15**	**2,390**	**36,777**	**25.45**	**12.53**
Municipal Police	7	1,235	19,405	36.90	34.53
State Police	2	631	12,136	4.20	5.84
Motorcycles	2	85	47	63.60	35.09
Small Fleet	4	439	5,188	32.00	33.00
School Bus Division	**22**	**937**	**13,807**	**7.68**	**8.34**
Transit Division	**26**	**3,742**	**148,203**	**28.65**	**29.76**
Truck Division[b]	**105**	**30,347**	**751,536**	**15.73**	**15.45**
Intercity	60	5,484	262,116	4.06	4.08
City	30	24,766	482,742	22.24	23.16
Small Fleet	15	97	6,678	3.44	2.65
Postal Service Division	**283**	**36,363**	**181,071**	**17.00**	**17.26**
Intercity	6	461	10,663	21.57	15.89
City	52	8,794	65,467	18.53	20.54
Light Delivery Vehicles	192	21,991	91,631	15.72	16.21
Passenger Cars-City	33	5,117	13,311	14.65	12.46
Automobile Transporters Division	**24**	**12,569**	**718,963**	**4.75**	**4.95**
Truckaway	19	11,675	654,600	4.85	5.05
Driveaway	5	894	64,363	3.82	3.87
Gas Industry Division	**63**	**30,047**	**395,835**	**6.67**	**7.38**
Gas Utility	45	21,244	265,209	7.80	8.73
Gas Transmission System	18	8,803	130,625	4.39	4.45
Intercity Bus Division	**35**	**5,045**	**451,514**	**5.40**	**5.43**
Eastern Region	13	2,290	203,966	5.77	5.57
Western Region	8	2,254	223,681	4.97	5.09
Charter	10	300	18,041	3.66	3.08
Suburban Commuter	3	188	5,444	15.80	19.41
Airport Shuttle	1	13	382	0.00	0.00
Mail Contractors Division	**38**	**1,102**	**126,627**	**1.26**	**1.67**
Tractor-Trailer	17	858	112,996	1.23	1.68
Straight Truck	9	158	8,135	1.97	1.89
Small Fleet	12	86	5,495	.91	1.13

Source: National Fleet Safety Contests. These reports include property damage as well as personal injury accidents, but exclude accidents in which the fleet vehicle was properly parked. See also *Fleet Accident Rates, 1990*.

[a] Includes only cars used in the course of work by such persons as salesmen, supervisors, etc.

[b] Includes common carriers, private carriers and contract carriers.

PUBLIC ACCIDENTS, 1989

Between 1912 and 1989, accidental public deaths per 100,000 population were reduced 73 per cent from 30 to 8. In 1912, an estimated 28,000 to 30,000 persons died in public nonmotor-vehicle accidents. In 1989, with a population more than doubled, and recreational activity greatly increased, only 19,000 persons died in public accidents and 2,400,000 suffered disabling injuries. Public excludes deaths involving motor-vehicles and persons at work or at home.

Deaths	**19,000**
Disabling injuries	**2,400,000**
Death rate per 100,000 population	**7.7**
Cost (see also pages 2 and 3)	**$12.5 billion**

The 1989 standardized death rate of 6.5 per 100,000 population, adjusted to the age distribution of the population in 1940, was 34 per cent below the rate for 1950, despite an increase in deaths for the same period of 27 per cent. In general, nontransport deaths increased while transport deaths decreased.

		Transport[a]					Nontransport				
				Water							
Year	Total Public	Total[b]	Air	Drowning[c]	Other	Rail[d]	Total[b]	Falls	Drowning[c]	Firearms	Fires, Burns
1950	15,000	3,950	1,050	1,000	100	1,450	11,050	2,750	3,750	1,150	500
1955	15,500	3,600	1,300	1,000	100	950	11,900	3,200	4,300	950	450
1960	17,000	3,150	1,150	1,000[e]	100	700	13,850	3,700	4,350	1,100	750
1965	19,500	3,200	1,200	1,000	100	700	16,300	5,300	4,400	900	800
1970	23,500	3,300	1,200	1,200	100	600	20,200	5,000	5,200	900	700
1971	23,500	3,100	1,200	1,100	100	500	20,400	5,100	4,800	900	700
1972	23,500	3,200	1,200	1,200	100	500	20,300	5,100	4,900	900	700
1973	24,500	3,400	1,200	1,300	100	600	20,100	5,000	5,700	1,000	700
1974	23,000	3,200	1,200	1,200	100	500	19,800	5,000	5,100	900	600
1975	23,000	3,000	1,100	1,200	100	400	20,000	4,800	5,200	900	600
1976	21,500	2,800	1,100	1,000	100	400	18,700	4,800	4,400	800	600
1977	22,200	2,900	1,200	1,000	100	400	19,300	4,700	4,700	700	800
1978	22,000	3,200	1,400	1,100	100	400	18,800	4,600	4,600	700	600
1979	21,000	3,100	1,300	1,100	100	400	17,900	4,400	4,400	700	600
1980	21,300	2,900	1,100	1,100	100	400	18,400	4,500	4,700	700	600
1981	19,800	2,700	1,100	900	100	400	17,100	4,300	4,100	700	600
1982	19,500	2,900	1,200	1,000	100	400	16,600	4,100	4,000	700	500
1983	19,400	2,700	1,000	1,000	100	400	16,700	4,100	4,000	700	500
1984	18,300	2,400	900	800	100	400	15,900	4,100	3,300	700	500
1985	18,800	2,500	1,000	800	100	400	16,300	4,100	3,300	600	500
1986	18,700	2,300	800	800	100	400	16,400	3,900	3,600	600	500
1987	18,400	2,300	900	700	100	400	16,100	4,000	3,200	600	500
1988	18,500	2,300	1,000	700	100	300	16,200	4,400	2,700	600	600
1989	19,000	2,300	1,000	600	100	400	16,700	4,400	2,800	700	800

Source: National Safety Council estimates (1988 revised, 1989 preliminary) based on data from National Center for Health Statistics and state health departments. See page 21 for comparability.

[a] Transport is a primary classification but each class includes deaths from falls, drowning, burns, etc., occurring in connection with each type of transport.

[b] Includes some deaths not shown separately.

[c] Nontransport drownings are included in TOTAL drownings in table on pages 31, 32, and 33.

[d] Includes subways and elevateds.

[e] Data for this year and subsequent years not comparable with previous years due to classification changes.

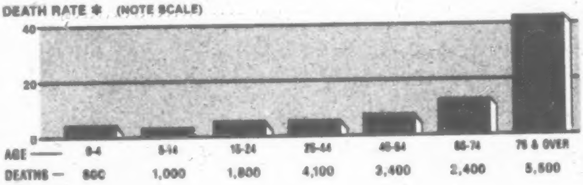
How people died in public accidents, 1989

(For accidental deaths in all places see pages 4 and 5.)

Type of accident and age of victim

All public

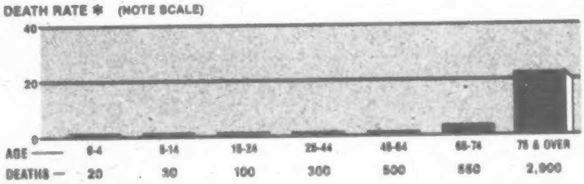
Death Total	Change from 1988	Death Rate[1]
19,000	+ 3%	7.7



Includes deaths in public places or places used in a public way, not involving motor vehicles. Most sports and recreation deaths are included. Excludes deaths in the course of employment.

Falls

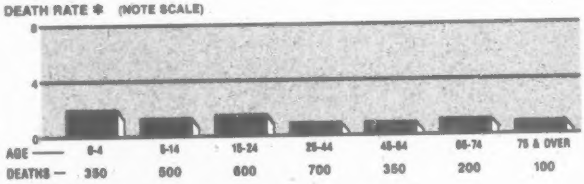
Death Total	Change from 1988	Death Rate[1]
4,400	0%	1.8



Includes deaths from falls in public places. Excludes deaths in falls from moving vehicles.

Drowning

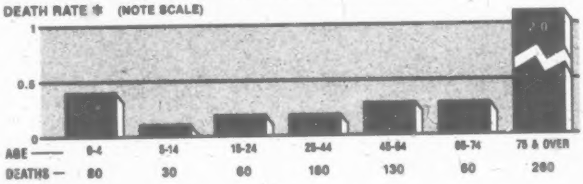
Death Total	Change from 1988	Death Rate[1]
2,800	+ 4%	1.1



Includes drownings of persons swimming or playing in water, or falling into water, except on home premises or at work. Excludes drownings involving boats, which are in water transportation.

Fires, burns, and deaths associated with fires

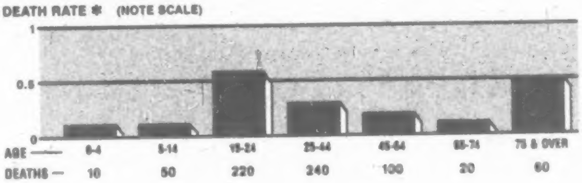
Death Total	Change from 1988	Death Rate[1]
800	+33%	0.3



Includes deaths from fires, burns, and injuries in conflagrations in public places—such as asphyxiation, falls, and struck by falling objects. Excludes burns from hot objects or liquids.

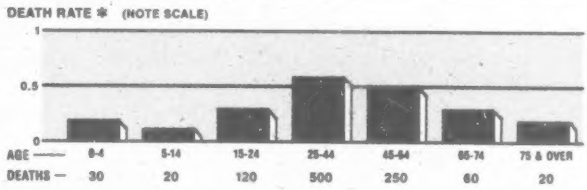
Firearms

Death Total	Change from 1988	Death Rate[1]
700	+17%	0.3



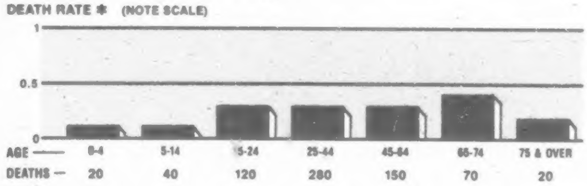
Includes deaths from firearms accidents in public places, including hunting accidents. Excludes deaths from explosive materials.

	Death Total	Change from 1988	Death Rate[a]
Air transport	1,000[b]	0%	0.4



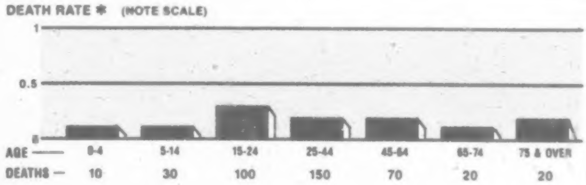
Includes deaths in private flying, passengers in commercial aviation, and deaths of military personnel in accidents in the U.S. Excludes crews and persons traveling in the course of employment.

	Death Total	Change from 1988	Death Rate[a]
Water transport	700[b]	-13%	0.3



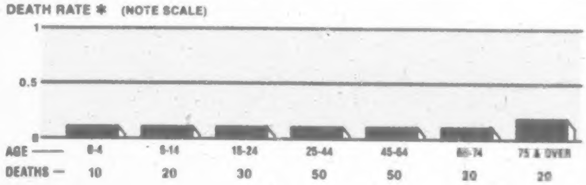
Includes deaths in water transport accidents—from falls, burns, etc., as well as drownings. More than nine out of ten of the drownings involved occupants of small boats.

	Death Total	Change from 1988	Death Rate[a]
Railroad	400[b]	+33%	0.2



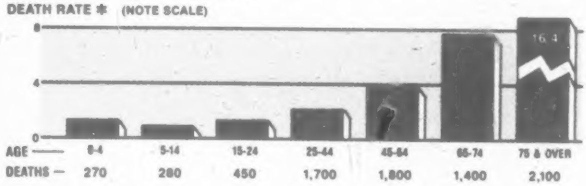
Includes deaths arising from railroad vehicles in motion (except those involving motor vehicles), subway and elevated trains, persons boarding or alighting from standing trains.

	Death Total	Change from 1988	Death Rate[a]
Other transport	200[b]	0%	0.1



Includes deaths in accidents involving pedalcycles, animal-drawn vehicles, street cars, etc., except in collision with motor vehicles. Excludes trolley buses, subways, elevateds, scooters.

	Death Total	Change from 1988	Death Rate[a]
All other public	8,000	+ 1%	3.2



Most important types included are: medical complications, excessive heat or cold, suffocation by ingestion, and poisoning by solid and liquid.

*Deaths per 100,000 population in each age group.

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[a] Deaths per 100,000 population.

[b] Excludes persons at work.

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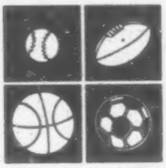
Sports Injuries



The table below shows estimates of injuries, deaths, and participants associated with various sports. Methods and coverage of reporting may vary among sources and can affect comparisons among sports. Because this list is not complete and the number of participants varies greatly, no inference should be made concerning the relative hazard of these sports or rank with respect to risk of injury.

Sport	Participants	Injuries	Fatalities
Archery	5,500,000	4,490	(a)
Baseball	13,400,000	327,620	1[b]
Basketball	23,100,000	460,420	7[b]
Bicycle riding	53,800,000	525,026	(a)
Boating	32,500,000	3,635[c]	896[c]
Bowling	37,900,000	17,382	(a)
Boxing	(a)	4,439	(a)
Fishing	45,700,000	66,605	(a)
Football	12,400,000	323,112	6[d]
Golf	22,700,000	19,836	(a)
Gymnastics	(a)	37,671	1[b]
Handball	(a)	2,857	(a)
Hang gliding	30,000[e]	(a)	6[e]
Ice hockey	1,800,000	18,910	0[b]
Ice skating	7,000,000	23,010	(a)
Parachuting	115,000[f]	(a)	36[f]
Racquetball	9,300,000	16,190	(a)
Roller skating	20,500,000	72,109	(a)
Scuba diving	2,500,000[g]	(a)	66[g]
Skateboarding	7,400,000	80,242	(a)
Snow skiing	18,200,000	(a)	1[b]
Soccer	8,700,000	94,569	0[b]
Softball	20,600,000	(a)	(a)
Swimming	71,100,000	99,161	1,700[h]
Tennis	17,300,000	21,201	1[b]
Volleyball	22,000,000	88,617	(a)
Water skiing	12,800,000	21,828	21[c]
Wrestling	(a)	37,122	0[b]

Source: Participants—National Sporting Goods Association (1988), except where noted; figures include those who participate more than one time per year except for bicycle riding and swimming, which include only those who participate more than six times per year. Injuries—Consumer Product Safety Commission (1988), except where noted; figures include only hospital emergency room treated injuries. Fatalities—[b]National Collegiate Athletic Association (NCAA) (1987-1988 school year); figures are for school or college sponsored sports only. [c]U.S. Coast Guard (1989), [d]NCAA (calender year 1988), [e]U.S. Hang Gliding Association (1989), [f]U.S. Parachute Association (1989), [g]National Underwater Accident Data Center (1988), [h]National Safety Council (1989).
[a]Estimate not available.

Football fatalities. Six fatalities directly attributable to football injuries occurred in 1988, according to a report covering professional, college, high school, and sandlot activities. All the fatalities occurred in high school play, with four occurring during games and two in practice. Four of the fatalities resulted from injuries to the head, one from chest injuries, and one from neck injuries. Of the fatalities in 1988, two were injured while tackling, one while being tackled, one was being blocked, one was in a pile-up and the activity of one was unknown.

In addition, there were 11 indirect fatalities recorded in 1988 (those fatalities which are caused by systemic failure as a result of exertion while participating in football activities or by a complication). Ten of the indirect fatalities were associated with high school football and one was associated with organized sandlot football.

Source: Mueller, F.O., and Schindler, R.D. *Annual Survey of Football Injury Research, 1931-1988.* National Collegiate Athletic Association, 1989.

Storm data

Deaths from storms in the U.S. totaled 289 during the one-year period from September 1988 through August 1989, according to the latest data available from the National Climatic Data Center. For specified types of storms, lightning was associated with the most deaths (67), followed by flash floods (43), tornadoes (31), thunderstorm winds (27), and nonflash floods (27). Deaths varied greatly by month, with May having the greatest number.

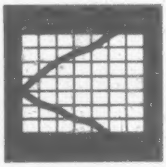
Injuries from storms during the same one-year period totaled 2,020. Tornadoes were associated with the greatest number of injuries (1,084), followed by thunderstorm winds (444), and lightning (328). Months with the greatest number of injuries were July, May, and November.

Tornadoes. Historically, tornadoes occur most often during the Spring and early Summer months. For the 26,832 tornadoes occurring during the 36-year period from 1953 through 1988, May had the highest average number of tornadoes (164 each year), followed by June (147) and April (105). Together these three months were responsible for about 56 per cent of the average 745 tornadoes each year in the U.S. Tornado deaths averaged 96 each year, ranging from 361 in 1974 to 15 in 1986.

By state, Texas has the greatest average annual number of tornadoes (123), followed by Oklahoma (53). Average tornado deaths each year are also highest for Texas (12), followed by Mississippi (10). On a per square mile basis, however, the average annual number of tornadoes is highest for Oklahoma (7.62 per 10,000 square miles), followed by Florida (7.49). Tornado deaths per 10,000 square miles are highest for Massachusetts (120), followed by Mississippi (72). The state with the fewest tornadoes is Alaska, which experienced only 1 tornado during the 36-year period.

Source: National Climatic Data Center, Asheville, North Carolina, *Storm Data* publications.

Trends in accidental public deaths, 1979-1989



Accidental public deaths were reduced by 10 per cent during the decade of the 1980s from 21,000 in 1979 to 19,000 in 1989, matching the 10 per cent decline in all accidental deaths during the decade. The death rate per 100,000 population fell by about 12 per cent from 9.4 to 7.7. Public transportation deaths decreased by 26 per cent although they comprise only a small portion of the public death total. Nontransport deaths declined by 7 per cent.

By specific type of accident, the largest decreases were for drownings and air transport. Combined water transport and nontransport public drownings, which make up the majority of all accidental drownings, decreased from 5,500 in 1979 to 3,400 in 1989, a decline of over 38 per cent. Water transport drownings declined by almost half from 1,100 to 600. Air transport deaths decreased by about one fourth from 1,300 in 1979 to 1,000 in 1989. Of all public accident types, fires and burns recorded the only increase during the 1980s, from 600 in 1979 to 800 in 1989.

By age, the largest decrease was in the 15 to 24 year age group. Public deaths for this group were reduced by nearly one half, from 3,400 in 1979 to 1,800 in 1989. Although the 15 to 24 year old population decreased during the 1980s, this age group still showed the largest decrease in public deaths per 100,000 population (38 per cent). Public deaths also declined by one third for the 5 to 14 year age group. Although no change or slight increases in deaths were recorded for the 0 to 4, 25 to 44, and 65 and over age groups, population death rates showed decreases for all age groups. Public death rates are highest for the 65 and over age group, which increased in percent of total population during the 1980s. Without this population shift, the population death rate for public accidents would have declined even further.

Transportation accident statistics

Passenger transportation accidents account for about one fourth of all accidental deaths. But the risk to the passenger, expressed on a per mile basis, varies greatly by transportation mode. Automobile travel presents the greatest risk; air, rail, and bus travel have much lower death rates. The tables below show the latest information on passenger transportation deaths and death rates.

Transportation Accident Death Rates, 1986-1988

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Kind of Transportation	1988 Passenger Deaths	1988 Passenger Miles (billions)	1988 Deaths per 100,000,000 Passenger Miles	1986-1988 Average Death Rate
Passenger automobiles[a]	25,614	2,143.9	1.19	1.23
Buses	44[b]	127.9	0.03	0.03
School buses	*34*	*83.2*	*0.04*	*0.02*
Transit buses	*1*	*21.6*	*(e)*	*0.01*
Intercity buses	*6*	*23.1*	*0.03*	*0.03*
Railroad passenger trains[c]	2	12.8	0.02	0.06
Scheduled airlines[d]	273	334.2	0.01	0.03

Source: Automobile and bus passenger deaths—Fatal Accident Reporting System data. Railroad passenger deaths—Federal Railroad Administration. Airplane passenger deaths—National Transportation Safety Board. Passenger miles for intercity buses, railroad, and airlines—Transportation Policy Associates, *Transportation in America*, Washington, DC, May, 1989. All other figures—National Safety Council estimates.

[a] Includes taxi passengers. Drivers of passenger automobiles are considered passengers.

[b] Deaths include other and unknown bus types.

[c] Includes commutation.

[d] Includes large airlines and scheduled commuter airlines. Rates exclude suicide/sabotage deaths.

[e] Less than 0.005.

Passenger Deaths and Death Rates, 1978-1988

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Year	Passenger Cars & Taxis		Buses		Railroad Passenger Trains		Scheduled Airlines	
	Deaths	Rate[a]	Deaths	Rate[a]	Deaths	Rate[a]	Deaths	Rate[a]
1978	28,035	1.26	28	0.03	13	0.12	175	0.09
1979	27,713	1.28	28	0.03	6	0.05	371	0.17
1980	27,339	1.29	42	0.05	4	0.04	28	0.01
1981	26,410	1.25	41	0.05	4	0.04	22	0.01
1982	22,859	1.02	32	0.04	9	0.09	218	0.10
1983	22,739	0.98	49	0.05[b]	4	0.04	17	0.01
1984	23,373	0.98	37	0.03	12	0.11	39	0.02
1985	22,974	0.96	47	0.04	3	0.03	202	0.07
1986	24,704	1.27[b]	36	0.03	4	0.03	7	0.002
1987	24,909	1.22	34	0.03	16	0.13	253	0.07
1988	25,614	1.19	44	0.03	2	0.02	273	0.01

Source: See table above.

[a] Deaths per 100,000,000 passenger miles.

[b] Rate not comparable to prior years due to change in estimating procedure.

Passenger automobiles and taxis. Automobile occupants account for about two thirds of all vehicle occupant deaths, and automobiles represent about 70 per cent of the total vehicle miles of travel. The automobile statistics shown in the tables above represent all passenger car usage, both intercity and local.

Buses. School buses transport approximately 22.0 million students each school day, or about 4.0 billion each year. Intercity buses carried 334 million passengers in 1988. A current estimate of the number of transit passengers is not available.

Railroad passenger trains. In 1988, Amtrak accounted for about 46 per cent of the railroad passenger miles, but none of the railroad passenger fatalities. Railroads carried about 340 million passengers in 1988.

Scheduled airlines. Of the 273 passenger deaths in 1988 in scheduled service, 256 were on large airlines and 17 were on commuter airlines. Of the scheduled large airline passenger deaths, 244 were suspected sabotage and not included in death rate calculations.

U. S. Civil Aviation Accidents, Deaths, and Death Rates, 1985-1989

Year	Accidents		Deaths[a]	Accident Rates			
				Per 100,000 Aircraft-Hours		Per Million Aircraft-Miles	
	Total	Fatal		Total	Fatal	Total	Fatal
			Large Airlines[b]				
1985	17	4	197	0.206	0.048	0.0049	0.0012
1986	20	1	1	0.201	0.000	0.0049	0.0000
1987	32	4	231	0.310	0.030	0.0076	0.0007
1988	31	3	285	0.288	0.019	0.0070	0.0005
1989	24	8	131	0.230	0.077	0.0055	0.0018
			Commuter Airlines[b]				
1985	21	7	37	1.029	0.403	0.070	0.023
1986	15	2	4	0.871	0.116	0.049	0.006
1987	32	10	59	1.644	0.514	0.091	0.029
1988	19	2	21	0.933	0.098	0.050	0.005
1989	18	5	31	0.882	0.245	0.047	0.013
			On-Demand Air Taxis[b]				
1985	152	35	76	5.46	1.26	...	...
1986	116	31	65	3.98	1.06	...	...
1987	98	30	65	3.41	1.04	...	...
1988	98	27	58	3.45	0.95	...	...
1989	110	23	80	3.83	0.80	...	...
			General Aviation[b]				
1985	2,741	497	950	8.95	1.62	...	...
1986	2,580	473	965	8.80	1.61	...	...
1987	2,468	433	811	8.45	1.48	...	...
1988	2,363	449	781	7.97	1.52	...	...
1989	2,167	420	763	7.25	1.40	...	...

Source: National Transportation Safety Board: 1989 preliminary, 1985-1988 revised; exposure data for rates from Federal Aviation Administration.

[a] Includes passengers, crew members, and others.

[b] Civil aviation accident statistics collected by the National Transportation Safety Board are classified according to the Federal air regulations under which the flights were made. The classifications are (1) large airlines operating scheduled service under Title 14, Code of Federal Regulations, part 121 (14 CFR 121); (2) commuter carriers operating scheduled service under 14 CFR 135; (3) unscheduled "on-demand" air taxis under 14 CFR 135; and (4) "general aviation," which includes accidents involving aircraft flown under rules other than 14 CFR 121 and 14 CFR 135. Suicide/sabotage is included in accident and fatality totals but excluded from rates. Not shown in the table is nonscheduled air carrier operations under 14 CFR 121 which experienced 4 accidents and 147 fatalities in 610,000 aircraft-hours flown during 1989.

Worldwide Airline Fatalities

Worldwide passenger deaths in scheduled air services totaled 825 in 1989, according to the International Civil Aviation Organization, a specialized agency of the United Nations with 162 member states. The death rate per 100 million passenger miles in 1989 was 0.08. Aircraft accidents involving a passenger fatality totaled 28.

While the number of deaths recorded in 1989 increased from 1988, the death rate remained unchanged. Passenger deaths per year averaged 678 for the last 10 years.

Year	Aircraft Accidents[a]	Passenger Deaths	Death Rate[b]	Year	Aircraft Accidents[a]	Passenger Deaths	Death Rate[b]
1970	29	700	0.29	1980	22	814	0.14
1971	32	884	0.35	1981	21	362	0.06
1972	41	1,209	0.42	1982	26	764	0.13
1973	36	862	0.27	1983	20	809	0.13
1974	29	1,299	0.38	1984	16	223	0.03
1975	21	467	0.13	1985	22	1,066	0.15
1976	20	734	0.19	1986	17	331	0.04
1977	24	516	0.12	1987	24	890	0.10
1978	25	754	0.15	1988	25	699	0.08
1979	31	877	0.16	1989[c]	28	825	0.08

Source: International Civil Aviation Organization. Figures exclude USSR.

[a] Involving a passenger fatality. [b] Passenger deaths per 100 million passenger miles. [c] Preliminary.

Deaths and Injuries in Railroad Accidents, 1933-1989

Year	Casualties Not at Public Grade-Crossings	All Casualties					
		TOTAL	Passengers on Trains[a]	Employees on Duty		Other Nontrespassers[a]	Trespassers
				Number	Rate[b]		
			DEATHS[c]				
1933	3,796	5,434	47	571	0.25	1,791	3,025
1943	3,426	5,302	271	1,069	0.29	2,154	1,788
1953[d]	1,518	3,110	50	339	0.12	1,712	1,009
1963	896	2,268	13	195	0.13	1,466	594
1973	721	1,989	6	166	0.15	1,225	592
1980	629	1,417	4	97	0.10	750	566
1981	587	1,284	4	65	0.07	633	582
1982	539	1,119	9	78	0.10	531	501
1983	531	1,073	4	61	0.08	536	472
1984	637	1,247	12	59	0.08	588	588
1985	499	1,036	3	46	0.07	513	474
1986	513	1,091	4	57	0.09	511	519
1987	567	1,165	16	55	0.09	510	584
1988	547	1,199	2	43	0.07	556	598
1989	567	1,324	8	49	0.08	626	641
			INJURIES[c]				
1933	23,509	27,079	1,963	15,512	6.71	5,806	3,798
1943	55,884	59,957	5,013	45,685	11.79	7,989	1,270
1953[d]	25,302	29,019	2,460	19,352	6.93	6,288	919
1963	23,839	27,329	2,135	19,397	12.56	5,162	635
1973	14,948	18,148	503	13,066	11.99	3,979	600
1980	58,584	62,246	593	56,331	55.73	4,594	728
1981	49,882	53,003	409	47,838	50.45	3,995	761
1982	37,767	40,275	387	36,032	44.96	3,185	671
1983	32,352	34,819	502	30,416	41.36	3,218	683
1984	35,847	38,570	1,000	33,364	44.93	3,433	773
1985	31,796	34,304	657	29,822	42.79	3,091	734
1986	24,595	26,923	686	22,387	34.74	3,144	706
1987	23,720	26,033	475	21,982	35.51	2,903	673
1988	24,637	27,054	337	22,573	37.12	3,224	920
1989	24,032	26,715	399	22,183	38.35	3,235	898

Source: Federal Railroad Administration. See lower table for footnotes. (1989 preliminary.)

Rail-Highway Public Grade-Crossing Accidents, 1943-1989

Year	Deaths[c]				Nonfatal Injuries[c]			
	TOTAL	Motor-Vehicle	Pedestrian	Other	TOTAL	Motor-Vehicle	Pedestrian	Other
1943	1,876	1,525	325	26	4,073	3,831	147	95
1953[d]	1,592	1,419	152	21	3,717	3,632	57	28
1963	1,372	1,286	71	15	3,454	3,366	33	55
1973	1,233	1,078	78	77	3,259	3,115	37	107
1980	788	708	54	26	3,662	3,534	31	97
1981	697	623	47	27	3,121	3,020	30	71
1982	580	526	36	18	2,508	2,417	22	69
1983	542	483	37	22	2,467	2,372	29	66
1984	610	543	40	27	2,723	2,597	25	101
1985	537	480	31	26	2,508	2,395	21	92
1986	578	507	44	27	2,328	2,227	36	65
1987	598	533	44	21	2,313	2,239	27	47
1988	652	594	41	17	2,417	2,344	34	39
1989	757	682	54	21	2,683	2,615	32	36

Source: Federal Railroad Administration data for public grade-crossing accidents only. (1989 preliminary.)

[a] Federal Railroad Administration definitions are "Persons on or getting on or off passenger-carrying trains under conditions not constituting trespass are designated as 'passengers on trains.' Other persons lawfully on railroad premises in connection with their journeys by railroads are designated as 'traveler not on trains'"; in 1957 and later years these were included with "other nontrespassers."

[b] Prior to 1975, rates are for Class I railroads only, which account for more than nine tenths of railroad exposure. Employee work hours for other railroads were not available. The rates are the number of deaths or injuries per million hours worked. Because of differences in definitions the injury rates are not comparable with those for other industries shown elsewhere in *Accident Facts*.

[c] From 1961 through 1974, the F. R. A. classified those cases where death occurred more than 24 hours after the injury as nonfatal injuries. In the tables above these cases are included as deaths. Effective with 1975, subsequent deaths are classified as deaths; injuries that disable a person for less than three days are now counted.

[d] Changes in F. R. A. reporting rules make comparisons invalid for 1933-1953 with subsequent years.

HOME ACCIDENTS, 1989

Between 1912 and 1989, accidental home deaths per 100,000 population were reduced 68 per cent from 28 to 9. In 1912, when there were 21 million homes, an estimated 26,000 to 28,000 persons were killed in home accidents. In 1989, with 91 million homes and the population more than doubled, accidental home deaths numbered only 22,500.

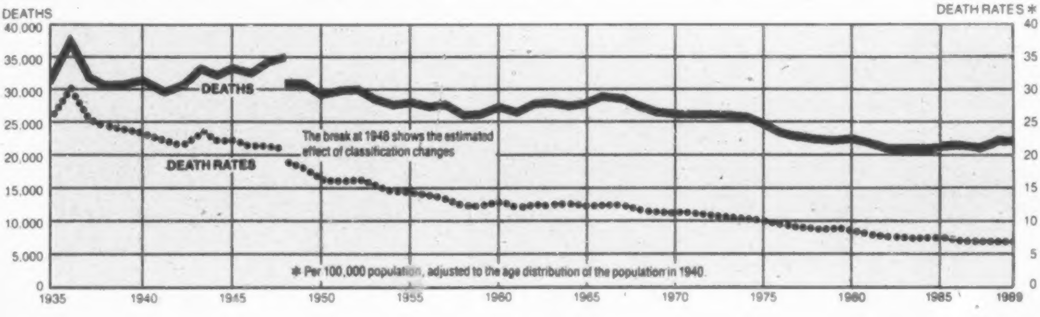
Deaths	**22,500**
Disabling injuries	**3,400,000**
Death rate per 100,000 population	**9.1**
Cost (see also pages 2 and 3)	**$18.2 billion**

The injury total of 3,400,000 means that one person in 73 in the U.S. was disabled one or more days by injuries received in home accidents in 1989. About 90,000 of these injuries resulted in some permanent impairment. Disabling injuries are more numerous for home accidents than for any other class of accident.

The National Health Interview Survey indicates that about 20,435,000 home injuries occurred in 1988 (the latest year available). This means that about one person in 12 incurred a home injury requiring medical attention or resulting in one-half day or more of restricted activity. Approximately 153,734,000 days of restricted activity and 39,636,000 days of bed disability resulted from injuries in and around the home. See page 12 for definitions and numerical differences between National Health Interview Survey and National Safety Council figures.

Trends in home accidental deaths and standardized rates

The 1989 standardized death rate of 7.2 per 100,000 population, adjusted to the age distribution of the population in 1940, was 69 per cent below the rate for 1935. Deaths from home accidents in 1989 numbered about 21 per cent below 1935, after adjusting for the 1948 change in classification. Decreases of more than 50 per cent occurred in the 0 to 4 and 5 to 14 year age groups. Deaths of those 25 to 64 years old, however, increased by 6 per cent from 1935. The age distribution of the population has also changed since 1935, especially for the group 65 and over, who now comprise about 12 per cent of the population compared to 6 per cent in 1935. The death rate per 100,000 population for this age group has decreased by four fifths.



The break at 1948 shows the estimated effect of classification changes

* Per 100,000 population, adjusted to the age distribution of the population in 1940.

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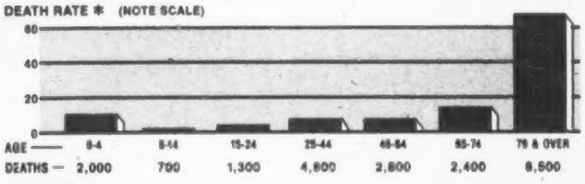
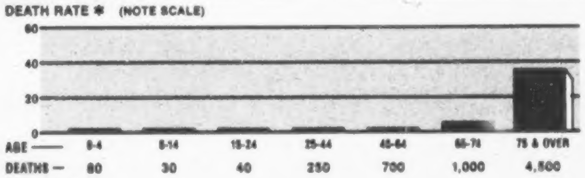
How people died in home accidents, 1989

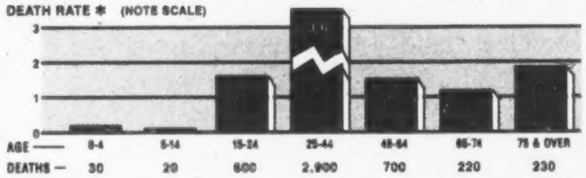
(For accidental deaths in all places see pages 4 and 5.)

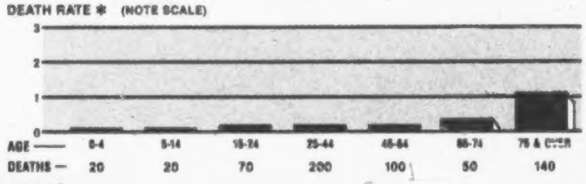
Type of accident and age of victim

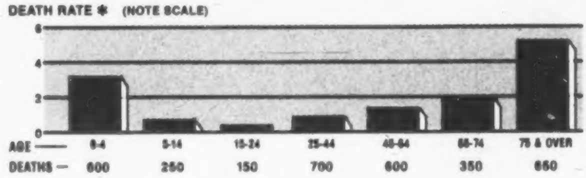
	Death Total	Change from 1988	Death Rate²	
All home	22,500	0%	9.1	Includes deaths in the home and on home premises to occupants, guests, and trespassers. Also includes domestic servants but excludes other persons working on home premises.
Falls	6,600	+ 3%	2.7	Includes deaths from falls from one level to another (stairs, ladder, roof, etc.), and on the same level (floor, ground, sidewalk, etc.).
Poisoning by solids and liquids	4,700	+12%	1.9	Includes deaths from drugs, medicines, mushrooms and shellfish, as well as commonly recognized poisons. Excludes poisonings from spoiled foods, salmonella, etc.—which are classified as disease deaths.
Poisoning by gases and vapors	600	0%	0.2	Principally carbon monoxide due to incomplete combustion, involving cooking stoves, heating equipment and standing motor vehicles. Gas poisonings in conflagrations are classified as fire deaths.
Fires, burns, and deaths associated with fires	3,300	-13%	1.3	Includes deaths from fires, burns, and from injuries in conflagrations in the home—such as asphyxiation, falls, and struck by falling objects. Excludes burns from hot objects or liquids.



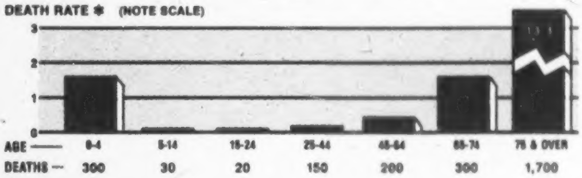






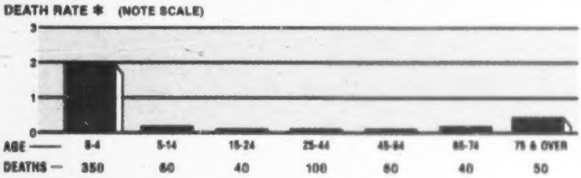


	Death Total	Change from 1988	Death Rate[1]
Suffocation–ingested object	2,700	- 4%	1.1



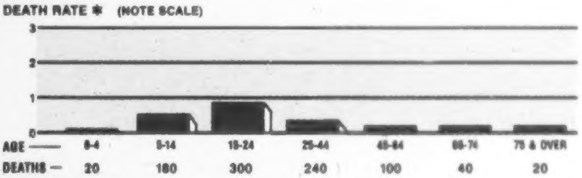
Includes deaths from accidental ingestion or inhalation of objects or food resulting in the obstruction of respiratory passages.

Suffocation–mechanical	700	+40%	0.3



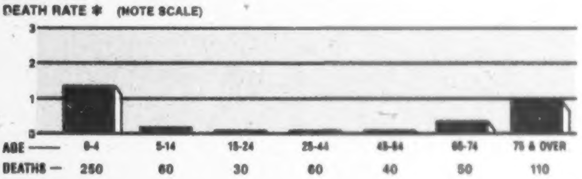
Includes deaths from smothering by bed clothes, thin plastic materials, etc., suffocation by cave-ins or confinement in closed spaces, and mechanical strangulation.

Firearms	900	0%	0.4



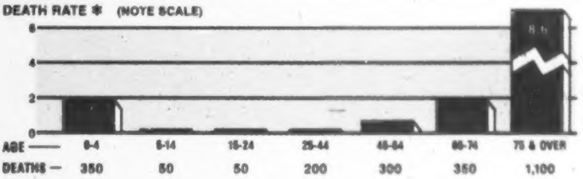
Includes firearms accidents in or on home premises. Many occur while cleaning or playing with guns. Excludes deaths from explosive materials.

Drowning	600	-14%	0.2



Includes drownings of persons in or on home premises. Most occur in swimming pools and bathtubs. Excludes drownings in floods and other cataclysms.

All other home	2,400	- 8%	1.0



Most important types included are: electric current, explosive materials, and hot substance, corrosive liquid, and steam.

✱Deaths per 100,000 population in each age group.

[1] Deaths per 100,000 population.

Injuries associated with consumer products

The following list of items found in and around the home was selected from the U.S. Consumer Product Safety Commission's National Electronic Injury Surveillance System (NEISS) for 1988. The NEISS estimates are calculated from a sample of statistically representative hospitals in the U.S. Injury totals represent estimates of the number of hospital emergency room-treated cases nationwide associated with various products. However, product involvement may or may not be the cause of the accident.

Estimated Injuries Related to Selected Consumer Products, 1988

Product	Injuries[a]
Home Maintenance:	
Noncaustic cleaning equip., detergents	19,338
Cleaning agents (except soaps)	36,344
Miscellaneous household chemicals	14,348
Paints, solvents, lubricants	21,928
Home Workshop Equipment:	
Batteries, all types	12,080
Hoists, lifts, jacks, etc.	15,165
Miscellaneous workshop equipment	33,726
Power home tools, except saws	24,208
Power home workshop saws, all	64,232
Welding, soldering, cutting tools	13,940
Wires, cords, not specified	14,298
Workshop manual tools	99,016
Packaging & Containers, Household:	
Cans, other containers	183,023
Glass bottles, jars	67,439
Paper, cardboard, plastic products	34,174
Housewares:	
Cookware, pots, pans	29,226
Cutlery, knives, unpowered	337,464
Drinking glasses	114,923
Miscellaneous housewares	51,383
Scissors	19,566
Small kitchen appliances	35,484
Tableware and accessories	114,628
Home Furnishings, Fixtures and Accessories:	
Bathtub, shower structures	121,600
Beds, mattresses, pillows	299,222
Carpets, rugs	82,235
Chairs, sofas, sofa beds	291,446
Desks, cabinets, shelves, racks	166,661
Electric fixtures, lamps, equipment	40,517
Ladders, stools	128,818
Mirrors, mirror glass	23,013
Miscellaneous household covers, fabrics	14,545
Other misc. furniture, accessories	39,417
Sinks, toilets	42,016
Tables, all types	269,255
Home Structures and Construction Materials:	
Cabinets or door hardware	17,209
Ceilings, walls, panels (inside)	186,328
Counters, counter tops	23,088
Fences	113,331
Glass doors, windows, panels	176,393
Handrails, railings, banisters	35,899
Miscellaneous construction materials	59,829
Nails, carpet tacks, etc	220,640
Nonglass doors, panels	281,649
Porches, open side floors, etc.	92,508
Stairs, ramps, landings, floors	1,477,887
Window, door sills, frames	41,457
General Household Appliances:	
Cooking ranges, ovens, etc.	41,442
Irons, clothes steamers (not toys)	18,805
Miscellaneous household appliances	22,124
Refrigerators, freezers	26,615
Washers, dryers	19,075
Heating, Cooling, and Ventilating Equipment:	
Air conditioners	10,476
Chimneys, fireplaces	14,682
Fans (except stove exhaust fans)	19,384
Heating stoves, space heaters	30,992
Pipes, heating and plumbing	24,188
Radiators, all	17,976
Home Communication, Entertainment and Hobby Equipment:	
Miscellaneous hobby equipment	11,868
Pet supplies, equipment	13,576
Sound recording, reproducing equipment	37,440
Television sets, stands	31,754
Personal Use Items:	
Cigarettes, lighters, fuel	20,878
Clothing, all	115,058
Grooming devices	25,680
Holders for personal items	14,895
Jewelry	43,087
Paper money, coins	29,418
Pencils, pens, other desk supplies	42,130
Razors, shavers, razor blades	36,122
Sewing equipment	29,996
Yard and Garden Equipment:	
Chain saws	36,145
Hand garden tools	35,427
Hatchets, axes	16,458
Lawn, garden care equipment	39,421
Lawn mowers, all types	53,830
Other power lawn equipment	15,300
Sports & Recreation Equipment:	
All-terrain vehicles, mopeds, minibikes	112,571
Barbecue grills, stoves, equipment	13,239
Bicycles, accessories	525,027
Exercise equipment	65,029
Nonpowder guns, BBs, pellets	22,240
Playground equipment	204,726
Skateboards	80,242
Toboggans, sleds, snow disks, etc	28,818
Trampolines	13,944
Miscellaneous Products:	
Dollies, carts	32,604
Elevators, other lifts	11,539
Fireworks, flares	10,330
Gasoline and diesel fuels	15,964
Nursery equipment	84,193
Toys	141,755

Source: Consumer Product Safety Commission, National Electronic Injury Surveillance System.

[a] Estimated number of product-related injuries in the U.S. and territories which were treated in hospital emergency departments in 1988. Not all product categories are shown.

Accidental fatal and nonfatal poisonings

Accidental deaths from solid and liquid poisoning decreased by 7 per cent from 4,731 in 1986 to 4,415 in 1987, the latest year for which detailed tabulations are available. However, deaths attributed to local anesthetics, including cocaine, increased by almost 25 per cent, rising from 624 fatalities in 1986 to 777 fatalities in 1987.

Over the last 30 years, the number and circumstances of accidental death from solid and liquid poisoning have changed greatly. Since 1957, the death rate per 100,000 population has more than doubled from 0.8 to 1.8 in 1987. The 25 to 44 year age group had the greatest increase in death rates, from 0.8 in 1957 to 3.4 in 1987. The death rate for the 0 to 4 year age group has fallen dramatically, from 1.9 in 1957 to 0.2 in 1987.

Due to classification changes, death figures by type of poisoning are only comparable since 1979. The number of deaths from drugs, medicaments and biologicals has increased steadily since 1979, while the number of deaths from other solid and liquid poisons, including household chemicals, has decreased slightly.

Total human poisoning exposures, both fatal and nonfatal, were projected at more than 2 million in 1988, according to the American Association of Poison Control Centers.

Poisoning by Type and Age, Accidental Deaths, 1987

Deaths by Type of Poisoning	All Ages	Under 5 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65 Years and Over
Total Poisoning by Solids and Liquids	**4,415**	**31**	**21**	**432**	**2,649**	**696**	**586**
Rate (deaths per 100,000 population)	1.8	0.2	0.1	1.1	3.4	1.5	2.0
Male	*3,119*	*20*	*15*	*306*	*2,074*	*431*	*273*
Female	*1,296*	*11*	*6*	*126*	*575*	*265*	*313*
Drugs, medicaments, biologicals	**3,907**	**22**	**11**	**379**	**2,455**	**517**	**523**
Male	*2,712*	*13*	*6*	*262*	*1,906*	*295*	*230*
Female	*1,195*	*9*	*5*	*117*	*549*	*222*	*293*
Analgesics, antipyretics, antirheumatics	937	7	2	64	670	141	53
Opiates, related narcotics	*595*	*3*	*1*	*36*	*480*	*65*	*10*
Salicylates (incl. aspirin)	*81*	*3*	*0*	*3*	*22*	*27*	*26*
Other, unspecified analgesics, antipyretics, antirheumatics	*261*	*1*	*1*	*25*	*168*	*49*	*17*
Barbiturates	30	0	0	4	17	5	4
Other sedatives, hypnotics	29	0	1	3	14	7	4
Tranquilizers	63	0	1	2	30	17	13
Other psychotropic agents	165	3	2	14	89	42	15
Other drugs acting on central and autonomic nervous system (incl. local anesthetics)	852	1	0	143	638	49	21
Antibiotics	59	0	0	4	5	18	32
Anti-infectives	7	1	0	1	2	2	1
Other drugs	1,765	10	5	144	990	236	380
Cardiovascular drugs	*248*	*1*	*1*	*2*	*8*	*24*	*212*
Gastrointestinal drugs	*10*	*0*	*0*	*0*	*0*	*6*	*4*
Other, unspecified drugs	*1,507*	*9*	*4*	*142*	*982*	*206*	*164*
Other solids and liquids	**508**	**9**	**10**	**53**	**194**	**179**	**63**
Male	*407*	*7*	*9*	*44*	*168*	*136*	*43*
Female	*101*	*2*	*1*	*9*	*26*	*43*	*20*
Alcohol	347	1	0	21	143	147	35
Cleansing, polishing agents, disinfectants, paints, varnishes	11	1	0	1	4	3	2
Petroleum products, other solvents and their vapors	70	3	7	20	25	7	8
Agricultural, horticultural chemical, pharmaceutical preparations	13	3	1	2	3	1	3
Corrosives, caustics	10	0	0	0	4	3	3
Foodstuffs, poisonous plants	9	0	0	4	4	1	0
Other, unspecified solids and liquids	48	1	2	5	11	17	12
Total Poisoning by Gases and Vapors	**900**	**22**	**26**	**181**	**308**	**181**	**182**
Rate (deaths per 100,000 population)	0.4	0.1	0.1	0.5	0.4	0.4	0.6
Male	*663*	*10*	*15*	*134*	*257*	*137*	*110*
Female	*237*	*12*	*11*	*47*	*51*	*44*	*72*
Gas distributed by pipeline	53	2	3	12	11	9	16
Other utility gas, other carbon monoxide	690	12	10	140	260	134	134
Other gases and vapors	157	8	13	29	37	38	32

Source: National Center for Health Statistics. See pages 31, 32 and 33 for earlier year totals; see page 21 for comparability.

Elderly

Deaths. The most common types of fatal accidents experienced by older Americans change with increasing age. Data for five-year age groups, shown in the table below, indicate that motor-vehicle accidents are the most common type of fatal accident, with falls second most common, through age 79, but the situation reverses beginning with age 80. For ages 90 and older, suffocation by ingestion of food or other object is second most important after falls. The age groups starting at 65 years have population death rates that are higher than the all-ages average of 38.1 per 100,000 population.

The contribution of injury as a cause of mortality among the elderly may be understated in most tabulations of death certificate data. According to a study[a] of National Center for Health Statistics Multiple Cause of Death data, injury was selected as the underlying cause of death in 86 per cent of all cases where injury was mentioned as a "cause" or "other significant condition." The percentage, however, varied greatly with age—from 97 per cent for those aged 1-44 years to 87 per cent for those aged 55-64 years to 50 per cent for those aged 75 or more. The type of accident also affected the selection of underlying cause. When motor-vehicle accident was mentioned, it was selected in more than 90 per cent of the cases across all age groups. When a fall was mentioned, it was selected in more than 90 per cent of the cases of those 44 and under, but in only 47 per cent of those aged 65-74 and less than 40 per cent of those age 75 or older. The author concludes that, "Cause of death tabulations based only on the underlying cause of death selectively underestimate the role of injury in the deaths of the elderly."

[a] Fife, D. (1987). Injuries and deaths among elderly persons. *American Journal of Epidemiology, 126* (5), 936-941.

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Accidental Deaths by Type of Accident, Ages 55 and over, 1987

Age Group	Population (000)	Accidental Deaths		Motor Vehicle	Falls	Suffocation by Ingestion	Surg. & Medical Misadv.[b]	Fires & Burns	Poisoning by		Drowning[c]	All Other
		Number	Rate[a]						Solid & Liquid	Gas & Vapor		
55-59	11,125	3,680	33.1	1,676	418	154	156	228	155	50	164	679
60-64	10,897	4,145	38.0	1,769	575	225	230	239	162	33	156	756
65-69	9,887	4,200	42.5	1,680	665	280	347	281	136	33	132	646
70-74	7,780	4,486	57.7	1,597	943	330	393	329	105	37	117	635
75-79	5,777	4,964	85.9	1,528	1,389	410	426	292	117	41	92	669
80-84	3,520	4,965	141.1	1,198	1,850	471	374	261	95	38	62	616
85-89	1,863	3,869	207.7	561	1,836	431	273	172	62	25	37	472
90-94	753	2,383	316.5	181	1,329	353	169	69	44	6	17	215
95-99	205	819	399.5	32	496	117	62	32	17	2	3	58
100 and over	45	152	337.8	4	94	24	9	6	2	0	1	12
55 and over	**51,852**	**33,663**	**64.9**	**10,226**	**9,595**	**2,795**	**2,439**	**1,909**	**895**	**265**	**781**	**4,758**
65 and over	**29,830**	**25,838**	**86.6**	**6,761**	**8,602**	**2,416**	**2,053**	**1,442**	**578**	**182**	**461**	**3,323**
75 and over	**12,163**	**17,152**	**141.0**	**3,504**	**6,994**	**1,806**	**1,313**	**832**	**337**	**112**	**212**	**2,042**

Source: National Safety Council tabulation of National Center for Health Statistics mortality data.

[a] Deaths per 100,000 population in each age group. [b] Surgical and medical complications and misadventures.

[c] Includes both transport and nontransport drownings.

Injuries. According to the 1988 National Health Interview Survey, 9.9 per cent of all injury episodes, or 5,703,000, involved persons 65 years of age or older. The number of episodes per 100 persons per year was 19.9 for those 65 or older compared to 24.0 for all ages. Persons 65 and older had 107,383,000 days of restricted activity and 36,059,000 bed days of disability due to injuries. (See pages 12 and 13 for definitions and additional information.) The National Hospital Discharge Survey reports that of 3,027,000 hospitalizations for injuries in 1987, persons 65 years and older accounted for 775,000 (26 per cent), of which 404,000 (52 per cent) were for fractures.

Home Accident Deaths by Type of Accident, 1950-1989

(See also pages 26 and 27 for Total deaths and rates for earlier years)

Year	Total Home	Falls	Fires, Burns[a]	Suffo.-Ing. Obj.	Suffo.-Mech.	Poison (solid, liquid)	Poison by Gas	Fire-arms	Other
1950	29,000	14,800	5,000	(b)	1,600	1,300	1,250	950	4,100
1955	28,500	14,100	5,400	(b)	1,250	1,150	900	1,100	4,600
1960	28,000	12,300	6,350	1,850	1,500	1,350	900	1,200	2,550
1965	28,500	11,700	6,100	1,300[c]	1,200	1,700	1,100	1,300	4,100[c]
1969	27,500	10,300	6,000	2,400[c]	1,100[c]	2,400	1,100	1,300[c]	2,900[c]
1970	27,000	9,700	5,600	1,800	1,100	3,000	1,100	1,400	3,300
1971	26,500	9,300	5,600	1,900	1,000	3,000	1,000	1,300	3,400
1972	26,500	9,300	5,500	1,800	900	3,000	1,000	1,400	3,600
1973	26,500	9,200	5,300	1,900	1,100	3,000	1,000	1,500	3,500
1974	26,000	9,000	5,100	1,800	900	3,200	900	1,400	3,700
1975	25,000	8,000	5,000	1,800	800	3,700	1,000	1,300	3,400
1976	24,000	7,700	5,200	1,800	700	3,300	1,000	1,200	3,100
1977	23,200	7,400	5,000	1,800	800	2,700	1,000	1,100	3,400
1978	22,800	7,400	5,100	1,800	800	2,400	1,100	1,000	3,200
1979	22,500	7,100	4,900	2,000	500	2,500	900	1,100	3,500
1980	22,800	7,100	4,800	2,000	500	2,500	700	1,100	4,100[d]
1981	21,700	6,800	4,700	2,000	500	2,600	800	1,000	3,300
1982	21,200	6,500	4,300	2,100	600	2,700	800	1,000	3,200
1983	21,200	6,500	4,100	2,200	600	2,700	800	900	3,400
1984	21,200	6,400	4,100	2,300	600	3,000	700	900	3,200
1985	21,600	6,500	4,000	2,400	600	3,200	700	900	3,300
1986	21,700	6,100	4,000	2,500	600	3,700	600	800	3,400
1987	21,400	6,300	3,900	2,500	600	3,500	600	800	3,200
1988	22,500	6,400	3,800	2,800	500	4,200	600	900	3,300
1989	22,500	6,600	3,300	2,700	700	4,700	600	900	3,000

Source: National Safety Council estimates (1988 revised, 1989 preliminary) based on data from National Center for Health Statistics and state health departments. See page 21 for comparability.

[a] Includes deaths resulting from conflagration, regardless of nature of injury. [b] Included in Other.

[c] Data for this year and subsequent years not comparable with previous years due to classification changes.

[d] Includes about 1,000 excessive heat deaths due to summer heat wave.

Trends in accidental home deaths, 1979-1989

While all accidental deaths decreased by 10 per cent from 1979 to 1989, accidental home deaths remained unchanged. However, due to an increase in population during the decade, the home death rate per 100,000 population declined by 10 per cent.

By specific type of accident, decreases in home deaths by poison gas, fires, firearms, and falls were offset by increases in deaths by suffocation and poisoning by solids and liquids. Deaths by poison gas and fires both declined by about one third over the decade, while firearms and falls were reduced by about 18 and 7 per cent respectively. Both mechanical suffocation and suffocation by ingestion increased by over one third. Home deaths from poisoning by solids and liquids, which make up the majority of all solid and liquid poisoning deaths, nearly doubled during the decade from 2,500 in 1979 to 4,700 in 1989, and are now the second leading cause of home deaths after falls. This increase is entirely due to drug-related deaths.

The increase in deaths from solids and liquid poisoning particularly affected the 25 to 44 year age group. This age group experienced a 50 per cent increase in accidental home deaths from 1979 to 1989, and was the only age group to have an increase in the home death rate per 100,000 persons during the decade (+14 per cent). Home deaths for the 65 and over age group also increased during the decade, but population increases in that age group caused the death rate to drop by almost 11 per cent. Decreases in the death rate for other age groups were as follows: 0 to 4 (–31 per cent); 5 to 14 (–36 per cent); 15 to 24 (–28 per cent); 45 to 64 (–28 per cent).

FARM RESIDENT ACCIDENTS, 1989

	Deaths	Deaths per 100,000 Farm Residents	Disabling Injuries
Total	**2,600**	**53.9**	**230,000**
Motor-vehicle	**1,400**[a]	**29.0**	**50,000**
Work (farm residents only)	**800**[a]	**16.6**	**80,000**
In farm work	700	14.5	70,000
In nonfarm work off farm	100	2.1	10,000
Home	**500**	**10.4**	**80,000**
Public nonmotor-vehicle	**200**	**4.1**	**30,000**

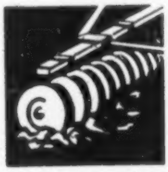
[a] Motor-vehicle deaths and injuries in work activities are included in both the Motor-vehicle and Work totals. The duplication amounted to about 300 deaths and 10,000 injuries in 1989.

The farm resident figures above are National Safety Council estimates of all accidental deaths and injuries of persons who live on farms. Included are deaths and injuries from accidents which occurred to farm residents both on and off farm property. Excluded are those from accidents which occurred on farms to nonresidents of farms. Also excluded are agricultural work deaths and injuries of workers who were nonresidents of farms. The U.S. Bureau of the Census reports that nonfarm residents comprised 63 per cent of the average 3.3 million persons employed in agricultural industries in 1988.

The Census Bureau also reports that 1.3 million farm residents (47 per cent of the employed farm resident labor force) worked solely, or primarily in the case of multiple job holders, in agriculture in 1988. Of farm residents employed in nonagricultural industries in 1988, over one half worked in services or manufacturing.

In 1989, 630,000 multiple job holders combined primary employment in a nonagricultural industry with a secondary job (mostly self-employment) in agriculture. Because worker totals on page 34 include only persons with primary employment in agriculture, the accidental death rate for agriculture would be reduced slightly if the influence on accident exposure of individuals with secondary employment in agriculture is considered. Similar adjustments would also reduce rates for other industries.

Work deaths and death rates in agriculture



The term agriculture includes not only production of crops and livestock (farming), but also agricultural services, forestry, and fishing. (Forestry excludes logging which is included in the manufacturing industry group.) There were 1,300 agricultural work deaths in 1989, of which 700 involved farm residents in farm work and 600 involved nonfarm residents working on farms and anyone working in other industries classified as agriculture. The corresponding injury totals were 120,000 in agricultural work — 70,000 to farm residents and 50,000 to others.

The 800 farm resident work deaths shown above consist of 700 deaths in farm work (included in the agricultural total) and 100 deaths in nonfarm work off the farm.

The death rates shown above are comparable to other population death rates in *Accident Facts* but are not comparable to death rates based on workers only.

Tractor fatality rates on the farm

Overturns have the highest fatality rate for tractor accidents occurring on the farm according to reports from 20 states covering over one half of the farm tractors in the U.S. In 1989, overturns accounted for 55 per cent of all on-the-farm tractor fatalities reported, with an annual rate of 4.0 deaths per 100,000 tractors.

For all tractor fatalities combined, projecting the overall rate of 7.2 deaths per 100,000 tractors in this sample to the nation's approximately 4.41 million tractors yields an estimated 320 tractor-related deaths on the farm nationwide.

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Tractor Fatality Rates on the Farm by Type of Accident, 1970-1989

	Deaths per 100,000 Tractors					Per Cent of Deaths				
Year	All Types	Overturns	Run Over	Power Takeoff	Other	Total	Overturns	Run Over	Power Takeoff	Other
1970	14.9	7.3	4.6	0.7	2.3	100%	49	31	5	15
1975	11.9	6.9	2.1	0.6	2.3	100%	58	18	5	19
1978	10.6	5.5	2.4	0.7	2.0	100%	52	23	6	19
1979	12.8	6.0	4.5	0.8	1.5	100%	47	35	6	12
1980	11.5	5.5	3.4	0.9	1.7	100%	48	29	8	15
1981	7.9	4.6	1.5	0.6	1.2	100%	58	20	7	15
1982	8.1	3.9	1.6	0.3	2.3	100%	49	20	4	27
1983	8.3	4.8	1.8	0.1	1.6	100%	58	22	1	19
1984	7.3	3.8	2.1	0.2	1.2	100%	52	29	2	17
1985	7.3	3.7	1.9	0.5	1.2	100%	51	26	7	16
1986	9.3	4.1	2.1	0.6	2.5	100%	44	23	6	27
1987	10.9	5.6	2.6	0.4	2.3	100%	52	24	3	21
1988	8.6	3.7	2.4	0.6	1.7	100%	44	29	7	20
1989	7.2	4.0	1.1	0.2	2.0	100%	55	15	2	28

Source: Deaths based on reports from vital statistics registrars and individual case reports; tractors based on U.S. Census of Agriculture, 1982, estimated for 1989 by *Implement & Tractor.*

Identifying Agricultural Work Fatalities

Relying on information from death certificates to identify agricultural occupational fatalities may result in significant undercounting according to a recent study of fatalities in Pennsylvania.[a] The study included a sample of 66 accidental deaths in that state from the years 1985 through 1987 which included "farm" or "agriculture" in any category on the death certificates, and for which families of the deceased agreed to participate in providing supplemental information about the deaths. Using this supplemental information, 39 of the 66 deaths were classified by researchers as agricultural occupational fatalities, i.e. the victim was either 1) engaged in a work activity related to his or her primary or secondary occupation of agriculture at the time of the fatality, 2) under the age of 16 and engaged in a farm work activity, or 3) under the age of 16 and injured by exposure to an agricultural worksite hazard although not engaged in an agricultural work activity.

Conversely, the National Institute for Occupational Safety and Health's National Traumatic Occupational Fatality (NTOF) system, which uses only information from the death certificate, identified only 26 of the deaths as agricultural occupationally-related, resulting in a net undercount of 13. Reasons why the deaths were missed by the NTOF system included: 1) the fatality was from the secondary occupation of agriculture and these are not listed on death certificates; 2) victims were under the age of 16 and thus excluded by the NTOF system; or 3) the "injury at work" category on the death certificate was either marked "no" or left blank.

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[a] Murphy, D.J., Seltzer, B.L. & Yesalis, C.E. Comparison of two methodologies to measure agricultural occupational fatalities. *American Journal of Public Health,* January 1990, *80* (2), 198-200.

Accidental Deaths of Farm Residents by Class, 1970-1989

Year	Total	Motor-Vehicle[a]	Work[a]	Home	Public	Farm Population[b]	Death Rate[c]
1970	6,600	3,400	1,800	1,300	750	9,712	68.0
1971	6,300	3,200	1,700	1,300	750	9,425	66.8
1972	6,400	3,300	1,700	1,300	750	9,610	66.6
1973	6,300	3,200	1,700	1,250	800	9,472	66.5
1974	5,800	2,800	1,600	1,200	750	9,264	62.6
1975	5,700	2,700	1,800	1,100	700	8,864	64.3
1976	5,600	2,800	1,700	1,000	650	8,253	67.9
1977	5,300	2,700	1,600	900	600	7,806	67.9
1978 (Old Defn.)[d]	5,400	2,800	1,600	900	600	8,005	67.5
1978 (New Defn.)[d]	4,400	2,300	1,300	750	450	6,501	67.7
1979	4,200	2,200	1,300	700	400	6,241	67.3
1980	4,000	2,100	1,300	700	350	6,051	66.1
1981	3,700	2,000	1,200	600	300	5,850	63.2
1982	3,300	1,700	1,100	600	250	5,628	58.6
1983	3,200	1,600	1,100	600	250	5,787	55.3
1984	3,200	1,700	1,000	600	250	5,754	55.6
1985	3,000	1,500	1,000	550	300	5,355	56.0
1986	2,900	1,600	1,000	450	250	5,226	55.5
1987	2,800	1,500	1,000	450	150	4,986	56.2
1988	2,800	1,500	900	500	200	4,951	56.6
1989[e]	2,600	1,400	800	500	200	4,822	53.9

Source: National Safety Council estimates.

[a] See footnotes to the table on page 100.

[b] Census Bureau figures (000 omitted), except 1989 which is a National Safety Council estimate.

[c] Deaths per 100,000 farm residents.

[d] A new farm definition became effective in 1978. The first figures for 1978 are comparable with those for earlier years; the second with those for later years.

[e] Preliminary.

The tables on this page are not comparable. The *upper table* shows National Safety Council estimates of all accidental deaths of persons who lived on farms. For description of inclusions and exclusions, see first paragraph on page 100. The *lower table* shows deaths from injuries which occurred on farms to all persons, primarily farm residents, but includes others such as nonresident workers, hunters, and visitors. Excluded are farm home accidental deaths, transport deaths, and deaths of farm residents from accidents which occurred off farm property. Tabulations are understated as not all death certificates indicate place of accident.

Nontransport Deaths from Accidents on Farms by Type, 1969-1987

(excluding farm home deaths)

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Year	All Types[a]	Machinery	Drowning	Firearms	Falls	Struck by Obj.	Fires, Burns	Elec. Curr.	Animals	Poisoning	Suffocation	Lightning
1969	1,954	467[b]	317	180[b]	121	350[b]	74[b]	71	78	26	56[b]	27
1970	1,795	444	282	155	125	310	57	83	63	39	46	29
1971	1,717	428	268	148	112	269	59	59	69	31	47	29
1972	1,712	452	262	142	120	262	40	64	70	28	54	26
1973	1,769	447	262	146	119	285	40	72	82	29	51	22
1974	1,617	377	234	109	118	292	30	86	54	41	50	21
1975	1,672	476	209	115	105	284	26	93	45	35	52	24
1976	1,438	372	175	88	84	277	44	76	59	29	42	14
1977	1,383	327	163	73	94	276	37	90	52	23	38	18
1978	1,346	325	166	90	85	272	30	75	33	34	49	20
1979	1,276	627[b]	142	74	56[b]	112[b]	15	64	40	23	38	13
1980	1,309	557	199	77	67	127	37	67	44	30	46	2
1981	1,192	550	117	93	57	111	41	64	44	11	37	8
1982	1,219	538	143	78	67	108	21	82	44	30	27	13
1983	1,089	517	118	80	55	92	20	36	38	34	24	8
1984	989	469	98	73	51	101	19	34	31	28	32	12
1985	1,006	477	101	86	55	102	26	27	32	17	29	6
1986	974	457	109	56	52	79	17	36	46	21	40	8
1987[c]	945	458	94	43	56	88	23	40	44	12	22	10

Source: National Center for Health Statistics, *Vital Statistics of the United States*, except 1981 and 1982, *Multiple Cause-of-Death for ICD-9 1981 (1982) Data* (counts for selected states based on a 50 per cent sample).

[a] Includes some deaths not shown separately.

[b] Data not comparable with previous years due to classification changes in 1969 and 1979.

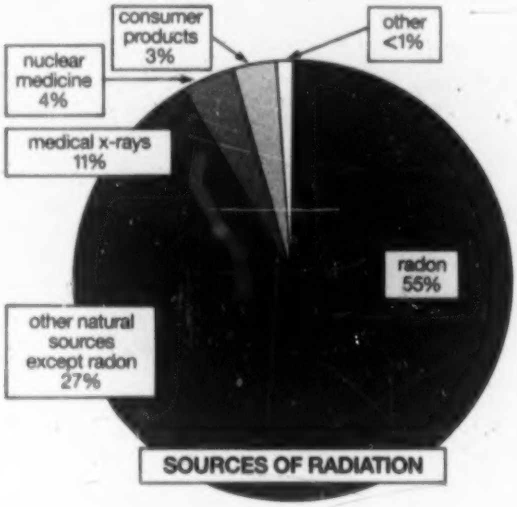
[c] Latest official figures.

Farm definition (effective 1978): A rural place from which $1,000 or more of agricultural products were sold, or normally would have been sold, in the reporting year.

ENVIRONMENTAL HEALTH

Sources of radiation

Of the total average effective dose equivalent[a] of radiation in the U.S. population, about 82 per cent comes from natural sources, mainly radon, according to the National Council on Radiation Protection and Measurement (see source below). Of the remaining 18 per cent from man-made sources, medical sources such as x-rays and nuclear medicine predominate. Consumer products account for about 3 per cent of the total. The table below and the chart to the right show the contribution of various sources.



SOURCES OF RADIATION

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Annual Effective Dose Equivalent[a] of Radiation in the U.S. Population by Source, circa 1980-1982

Source	Persons Exposed (thousands)	Annual Average Effective Dose Equivalent[a] in the:	
		Exposed Population (mSv)[b]	U.S. Population (mSv)[b]
Total (rounded)	**230,000**	. . .	**3.6**
Natural sources:			
Radon	230,000	2.0	2.0
Other	230,000	1.0	1.0
Occupational	930[c]	2.3	0.009
Nuclear fuel cycle	([d])	. . .	0.0005
Consumer products:			
Tobacco	50,000	([e])	([e])
Other	120,000	0.05-0.3	0.05-0.13
Miscellaneous environmental sources	25,000[f]	0.006	0.0006
Medical:			
Diagnostic x-rays	180,000[g]	0.5[g]	0.39
Nuclear medicine	7,400[g]	4.3[g]	0.14

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Source: National Council on Radiation Protection and Measurements. *Ionizing radiation exposure of the population of the United States.* Bethesda, MD: Author, 1987. (© NCRP 1987, used with permission.)

[a] Effective dose equivalent is either the dose equivalent (when the whole body is irradiated uniformly), or the weighted sum of the dose equivalents to each of the tissues of the body. By such weighting, a value is obtained which is estimated to be proportional to the radiation risk even though the body is not uniformly radiated. A dose equivalent is the product of the absorbed dose and a quality factor, accounting for the variation in biological effectiveness of different types of radiation.

[b] Sievert/1,000. 1 mSv = 100 mrem.

[c] Those nominally exposed total 1,680,000.

[d] Doses calculated to the regional population within 50 miles of each facility.

[e] Effective dose equivalent difficult to determine; dose to a segment of bronchial epithelium estimated to be 0.16 Sv/year.

[f] Approximate.

[g] Number of persons exposed is not known. Figures show number of examinations and annual average effective dose equivalent per examination.

OTHER SOURCES

The following organizations may be useful for obtaining more current data or more detailed information on various subjects in *Accident Facts.*

American Automobile Association
1000 AAA Drive
Heathrow, FL 32745
(407) 444-7000

American National Standards Institute
1430 Broadway
New York, NY 10018
(212) 354-3300

Centers for Disease Control
1600 Clifton Road
Atlanta, GA 30333
(404) 639-3286

Federal Highway Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-0660

Federal Railroad Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-0881

Insurance Information Institute
110 William Street
New York, NY 10038
(212) 669-9200

Insurance Institute for Highway Safety
1005 N. Glebe Road
Arlington, VA 22201
(703) 247-1500

International Association of Chiefs of Police
1110 N. Glebe Road, Suite 200
Arlington, VA 22201
(703) 243-6500

Mine Safety & Health Administration
Health & Safety Analysis Center
Division of Mining Information
P.O. Box 25367
Denver, CO 80225
(303) 236-2713

Motor Vehicle Manufacturers Association of the U.S., Inc.
7430 2nd Avenue, Suite 300
Detroit, MI 48202
(313) 872-4311

Motorcycle Safety Foundation
5525 Twin Knolls Road, Suite 330
Columbia, MD 21045
(301) 730-0402

National Center for Health Statistics
6525 Belcrest Road
Hyattsville, MD 20782
(301) 436-8500

National Clearinghouse on Alcohol and Drug Information
P.O. Box 2345
Rockville, MD 20852
(301) 468-2600

National Collegiate Athletic Association
P.O. Box 1906
Mission, KS 66201
(913) 384-3220

National Fire Protection Association
Batterymarch Park
Quincy, MA 02210
(617) 770-3000

National Highway Traffic Safety Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-0123

National Institute for Occupational Safety and Health
(Health inquiries)
4676 Columbia Parkway, Cincinnati, OH 45226
(Safety inquiries)
944 Chestnut Ridge Rd., Morgantown, WV 26505

National School Transportation Association
P.O. Box 2639
Springfield, VA 22152
(703) 644-0700

National Society to Prevent Blindness
500 E. Remington Road
Schaumburg, IL 60173
(708) 843-2020

National Spinal Cord Injury Association
600 W. Cummings Park, Suite 2000
Woburn, MA 01801
1-800-962-9629 Outside Massachusetts
1-800-698-2722 Massachusetts only

National Sporting Goods Association
1699 Wall Street
Mt. Prospect, IL 60056
(708) 439-4000

National Transportation Safety Board
800 Independence Avenue, SW
Washington, DC 20594
(202) 382-6600

Outdoor Power Equipment Institute
341 S. Patrick Street
Alexandria, VA 22314
(703) 549-7600

Social Security Administration
6401 Security Boulevard
Baltimore, MD 21235
(301) 965-7700

Transportation Policy Associates
1776 Massachusetts Avenue, NW
Washington, DC 20036
(202) 296-3774

Transportation Research Board
2101 Constitution Avenue, NW
Washington, DC 20418
(202) 334-2935

U.S. Coast Guard
2100 2nd Street, SW
Washington, DC 20593
(202) 267-2229

U.S. Consumer Product Safety Commission
National Injury Information Clearinghouse
5401 Westbard Avenue, Rm. 323
Bethesda, MD 20207
(301) 492-6424

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GLOSSARY

Accident is that occurrence in a sequence of events which usually produces unintended injury, death or property damage.

Accident type describes the occurrence leading to injury or property damage.

Agency or **agent** is the principal object such as tool, machine, or equipment involved in the accident and is usually the object inflicting injury or property damage.

Day (motor-vehicle accidents) is the time interval between sunrise and sunset.

Death from accident is a death which occurs within one year of the accident.

Disabling injury is an injury causing death, permanent disability, or any degree of temporary total disability beyond the day of the accident.

Farm, see page 102.

Fatal accident is an accident which results in one or more deaths within one year.

Home is a dwelling and its premises within the property lines, including, in addition to the usual single-family dwellings and apartment houses, duplex dwellings, boarding and rooming houses, and seasonal cottages. Excluded from Home are barracks, dormitories, and resident institutions.

Incidence rate, as defined by OSHA, is the number of injuries and/or illnesses or lost workdays per 100 full-time employees. See also page 45.

Injury is physical harm or damage to the body resulting from an exchange, usually acute, of mechanical, chemical, thermal, or other environmental energy that exceeds the body's tolerance.

Motor vehicle is any mechanically or electrically powered device (except one moved by human power), not operating on rails, upon which or by which any person or property may be transported upon a land highway. The load on a motor vehicle or trailer attached to it, is considered part of the vehicle. Tractors and motorized machinery are included while self-propelled in transit or used for transportation. Also included are motor scooters, motorized bicycles and snowmobiles.
Nonmotor vehicle is any vehicle other than a motor vehicle, **except** a coaster wagon, child's sled, child's tricycle, child's scooter, wheelchair, roller skates, ice skates, skis, baby carriage, and similar means of transportation; persons using these latter means of transportation are considered pedestrians.

Motor-vehicle accident is any accident involving a motor vehicle in transport (in motion, in readiness for motion, or on a roadway, but not parked in a designated parking area) that results in death, injury or property damage. For descriptions of different types of motor-vehicle accidents, see pages 52 and 53.

Motor-vehicle traffic accident is a motor-vehicle accident which occurs on a trafficway—a way or place, any part of which is open to the use of the public for the purposes of vehicular traffic.

Motor-vehicle nontraffic accident is any motor-vehicle accident which occurs entirely in any place other than a trafficway.

Night (motor-vehicle accidents) is the time interval between sunset and sunrise.

Nonfatal injury accident is an accident in which at least one person is injured, and no injury terminates fatally.

OSHA, see page 45 for Occupational Safety and Health Administration definitions.

Pedalcycle is a vehicle propelled by human power and operated solely by pedals; excludes mopeds.

Pedestrian is any person involved in a motor-vehicle accident who is not in or upon a motor vehicle or non-motor vehicle. (See definition of motor vehicle.) Included as pedestrians are persons injured while using a coaster wagon, child's tricycle, roller skates, etc. Excluded are persons boarding, alighting, jumping or falling from a motor vehicle in transport.

Permanent disability (or permanent impairment) includes any degree of permanent nonfatal injury. It includes any injury which results in the loss, or complete loss of use, of any part of the body, or any permanent impairment of functions of the body or a part thereof.

Property damage accident is an accident which results in property damage, but in which no person is injured.

Public accident is any accident other than motor-vehicle that occurs in the public use of any premises. Includes deaths in recreation (swimming, hunting, etc.), transportation except motor-vehicle, public buildings, etc., and deaths from widespread natural disasters even though some may have happened on home premises. Excludes accidents to persons in the course of gainful employment.

Rural (for motor-vehicle reporting) includes places of less than 5,000 inhabitants, except those classified as urban by the U.S. Census Bureau. (See urban definition below.)

School bus, see page 70.

Temporary total disability is an injury which does not result in death or permanent disability, but which renders the injured person unable to perform regular duties or activities on one or more full calendar days after the day of the injury.

Urban (for motor-vehicle reporting) includes places of 5,000 or more inhabitants, and the towns, townships, and other areas classified as urban by the U.S. Census Bureau.

Work hours are the total number of hours worked by all employees. They are usually compiled for various levels, such as an establishment, a company, or an industry. A work hour is the equivalent of one employee working one hour.

Work injuries (including occupational illnesses) are those which arise out of and in the course of gainful employment regardless of where the accident occurs. Excluded are work injuries to private household workers and injuries occurring in connection with farm chores which are classified as home injuries. (For OSHA definitions, see page 45.)

Workers are all persons gainfully employed, including owners, managers, other paid employees, the self-employed, and unpaid family workers, but excluding private household workers.

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ACCIDENT FACTS 1990 EDITION

35M890 Printed in U.S.A. 02170-0000
ISBN 0-87912-149-1